

# Management of Hospital-acquired Infection

*Volume Two of Two*



Report of the

**Controller and Auditor-General**

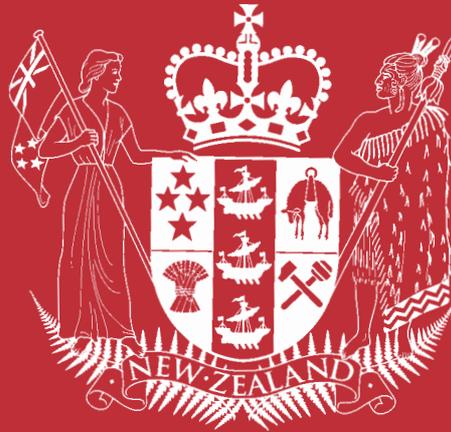
*Tumuaki o te Mana Arotake*

To Grandma and GRANDAD

I Love You



Get well soon and  
make sure the Doctor washes  
us hands before she fixes  
you love from Emma and  
Caitlin



**Report of the  
Controller  
and Auditor-General**

*Tumuaki o te Mana Arotake*

**Management of  
Hospital-acquired Infection**

***Volume Two of Two***

**June 2003**

*This is the second of two volumes of the report of a  
performance audit we carried out under the authority of  
section 16 of the Public Audit Act 2001.*

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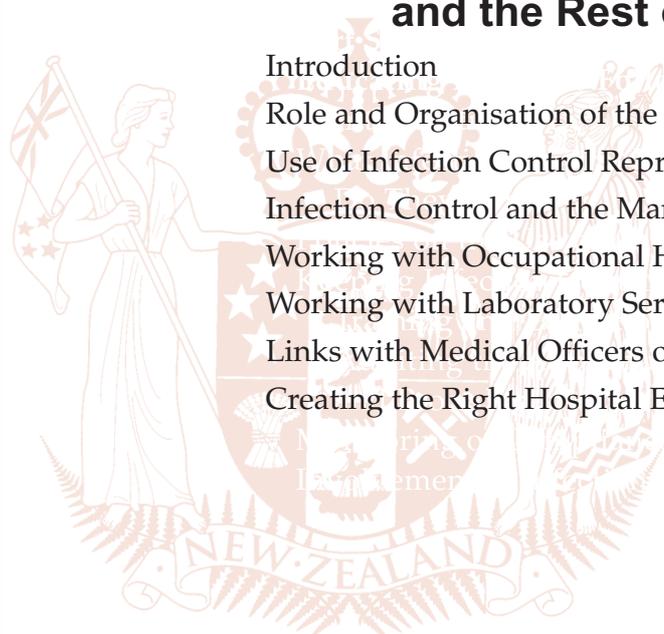
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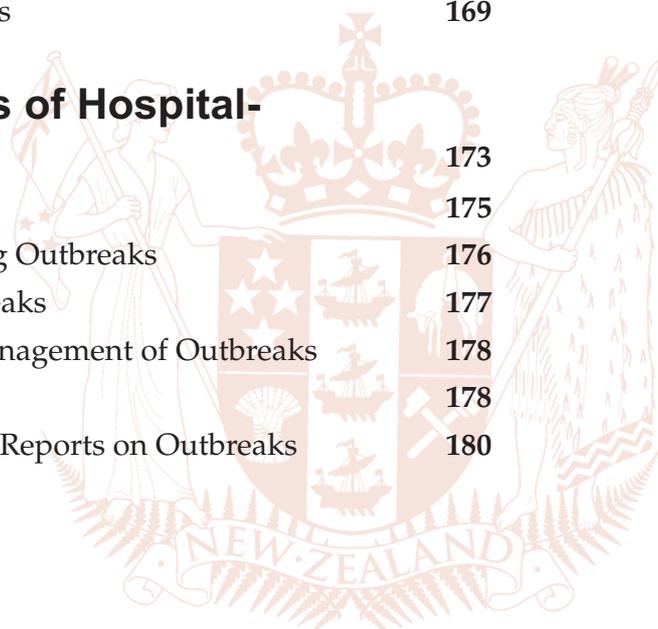
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## Explanatory Notes:

- 1 Frequent footnote references are made in this report to our survey by questionnaire of DHBs. The blank questionnaire form is available on our web site [www.oag.govt.nz](http://www.oag.govt.nz) under "Publications". All results are taken from a survey population of 21 DHB hospital services unless otherwise stated. The footnotes identify the relevant part of the survey questionnaire by form, question, and part – e.g. **F2: Q10, a, b, c** refers to Form 2, Question 10, and sub-parts a, b, and c of that question.
- 2 In this report we have used quotations extracted from DHB survey responses to highlight some issues and/or opinions. The quotations are shown in stylised text boxes.

## Part Four

# How Infection Control Is Organised and Managed





## Introduction

- 4.1 Hospital managers are responsible for ensuring the safety of patients and staff. Protecting them from infection is an important element of this responsibility. In this part we examine the following components of providing an effective infection control service:
- assigning roles and responsibilities for infection control throughout the hospital, with clear lines of accountability and delegation;
  - planning infection control activities through work plans or programmes;
  - ensuring good financial management of infection control activities;
  - ensuring that infection control activities are appropriately staffed; and
  - obtaining assurance about the quality of infection control systems and practices.

## Roles and Responsibilities for Infection Control

- 4.2 In each DHB hospital service<sup>43</sup>:
- Policy and operational infection control responsibilities should be clearly assigned.
  - All managers should be alert to the infection control implications of their work.
  - There should be a well-established infection control team.

### *Survey Responses on Responsibilities for Managing Infection Control*

- 4.3 In our survey we asked whether:
- each hospital service had an infection control team and how long it had been operating; and
  - executive, clinical, and risk managers had infection control responsibilities.

<sup>43</sup> The term *hospital service* refers to that part of the DHB delivering services in a hospital setting within the DHB.

## HOW INFECTION CONTROL IS ORGANISED AND MANAGED

- 4.4 All hospital services had an infection control team, with only one having been operating for less than five years.<sup>44</sup>
- 4.5 In all hospital services, infection control policy was a responsibility of the infection control committee (see paragraphs 5.6-5.14 on pages 102-105) and the infection control team, supported by hospital managers and/or the risk manager.<sup>45</sup> However, not all relevant hospital managers had infection control responsibilities. Notably, in seven hospital services, the Medical Director (and in three the Director of Nursing) had no responsibility for infection control policy, despite being the hospital service's clinical leader.<sup>46</sup>
- 4.6 Responsibility for operational infection control rested with the infection control team, along with the infection control committee and the General Manager.<sup>47</sup> Only nine hospital services identified their risk manager as having any infection control responsibility. Risk managers need to be aware of recurring and significant safety matters (such as infection) in order to be able to report to the District Health Board (DHB) and the Ministry of Health on the management of non-financial risks.

### *Conclusions*

- 4.7 Infection control responsibilities were appropriately allocated to a range of clinical staff and managers, although some hospital services did not give responsibilities to all relevant managers.
- 4.8 In those hospital services where the Medical Director and/or the Director of Nursing had some responsibility for infection control, the policies, procedures, and practices to prevent and control infection were more likely to receive full clinical support.
- 4.9 Assigning some responsibility for infection control to risk managers should ensure they are in a position to take a comprehensive view of this aspect of patient safety, in the context of risk management and quality assurance throughout the hospital.

44 F2: Q4.

45 F2: Q2, A.

46 F2: Q2, A.

47 F2: Q2, B.

### Recommendation 11

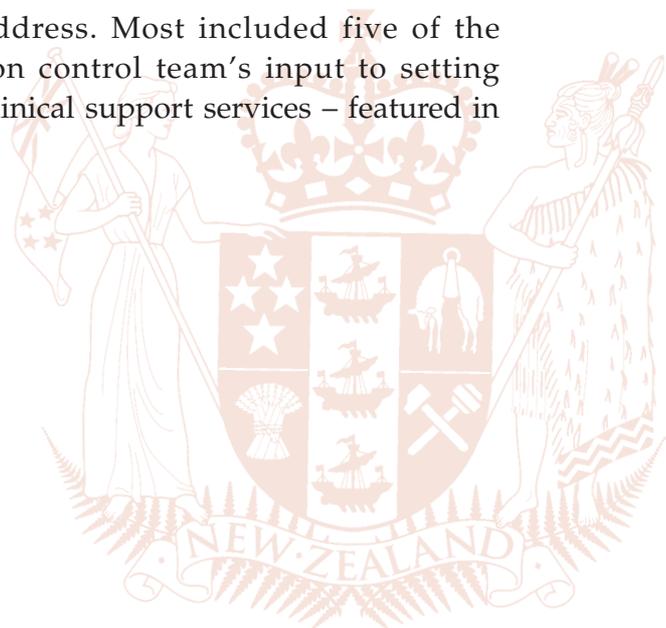
Hospital services should ensure that all relevant hospital managers are assigned infection control responsibilities – including clinical leaders and managers with responsibility for risk management and quality assurance.

## Planning Infection Control Activities

- 4.10 Infection control activities are wide ranging (see Parts Six, Seven, and Eight on pages 127-180). Reflecting the breadth of activity, an infection control programme should outline:
- what infection control issues the hospital service is facing (drawing on the results of the past year's activities);
  - how the infection control team proposes to perform its functions; and
  - the infection control team's strategies and priorities.

### *Survey Responses on the Content and Implementation of Infection Control Programmes*

- 4.11 We asked about the content of infection control plans or programmes, and how often progress against them was assessed.
- 4.12 Figure 6 (on the next page) illustrates the content of hospital services' infection control programmes in terms of seven sets of information that we expected the programmes to address. Most included five of the seven. The other two – the infection control team's input to setting standards and its input to audits of clinical support services – featured in just under half of the programmes.



## HOW INFECTION CONTROL IS ORGANISED AND MANAGED

*Figure 6*  
*What Did the 2000-01 Infection Control Programme Contain?*<sup>48</sup>

Did the Infection Control Programme Contain:	Yes	No
A list of policies requiring implementation or update?	18	3
Details of categories of staff requiring training or education?	17	4
Details of surveillance activities to be carried out?	21	0
Details of aspects of hospital hygiene to be monitored?	18	3
Plan/timetable for audit of infection control activities?	19	2
Details of infection control team's input into setting standards?	10	11
Details of infection control team's input to audits of clinical and support services?	10	11

**4.13** One particularly comprehensive infection control programme identified the following key areas of emphasis for infection control in the coming year:

- reviewing infection control policies;
- considering compliance and auditing requirements to meet the Standard;
- finalising a programme for safe re-use of medical devices;
- providing ongoing education and awareness training for people working in the hospital service;
- contributing to the design of new health care facilities; and
- enhancing access to corporate information for surveillance and analysis.

<sup>48</sup> F3.3: Q2.

- 4.14 Many infection control activities follow cycles, and need to be planned to make it possible to interpret data and trends over time. However, only seven hospital services had a documented long-term strategy for infection control beyond 12 months.<sup>49</sup>
- 4.15 Most respondents reported that they assessed the progress of their infection control programmes at least annually.<sup>50</sup>

### *Conclusions*

- 4.16 Most infection control programmes covered those areas we expected them to address, but we were concerned that fewer than half of the programmes specified how the infection control team should contribute to setting standards in clinical and support services, or identified planned audits of the services. Parts Five and Six on pages 99-150 look at why these matters are important.
- 4.17 Long-term planning (more than a year) is important in the context of meeting the Infection Control Standard by October 2004, but few hospital services were undertaking long-term planning of infection control.

#### **Recommendation 12**

Hospital services should make long-term plans for infection control in the context of meeting the Infection Control Standard by October 2004.

### **Financial Management of Infection Control**

- 4.18 We asked about funding and budgeting for infection control, and monitoring of expenditure.

#### *Survey Responses on Funding and Budgeting for Infection Control*

- 4.19 An infection control programme can be funded discretely or as one component of a larger budget. Different approaches have their benefits and drawbacks in terms of priorities for resource use, transparency, independence, and capability.

49 F3.3: Q7.

50 F3.3: Q3.

## HOW INFECTION CONTROL IS ORGANISED AND MANAGED

4.20 We asked:

- how the infection control programme was funded;
- what was budgeted for and spent in the 2000-01 financial year and what was budgeted for in 2001-02; and
- whether infection control budgets had changed between 1999-2000 and 2000-01 and between 2000-01 and 2001-02.

4.21 Twelve hospital services had a separate infection control budget and were able to provide a breakdown of their infection control team's costs.<sup>51</sup> Based on that data and the staff resources reported by all the survey respondents, we estimate that some \$2.7 million is spent directly on infection control programmes by public hospital services each year.

4.22 Infection control personnel are commonly engaged in a range of activities, and infection control work can compete with clinical and other duties. Establishing a discrete budget for infection control is one means of ensuring that resources are not eroded by competing priorities – or at least indicates to managers when priority choices have to be made. Nine respondents told us that a separate budget helped them to manage infection control activities.<sup>52</sup> Conversely, one of the respondents without a separate budget commented that having no discrete budget made it more difficult to make a case for additional resources.

**... Because everything gets lumped in together it can be difficult to make a case for extra funds. Discrete budget would help ...**

4.23 More than three-quarters of hospital services reported that their infection control budget had remained the same or increased in the past two years.<sup>53</sup> Four said it had declined in 2000-01 and three said it had declined in 2001-02.

51 F3.4: Q2.

52 F3.4: Q7a.

53 F3.4: Q10, A, B – respondents made estimates where precise figures were not available.

4.24 Publication of the Standard – see paragraph 2.27 on page 46 – appeared to have had little effect on the amount of resources allocated to infection control. However, four hospital services had allocated more resources to meet the Standard.<sup>54</sup>

[Effect of the Infection Control Standard]  
**...Infection control has a higher focus and priority, education for practitioners and staff has been increased, and resources to undertake duties have been improved ...**

### *Survey Responses on Monitoring of Infection Control Expenditure*

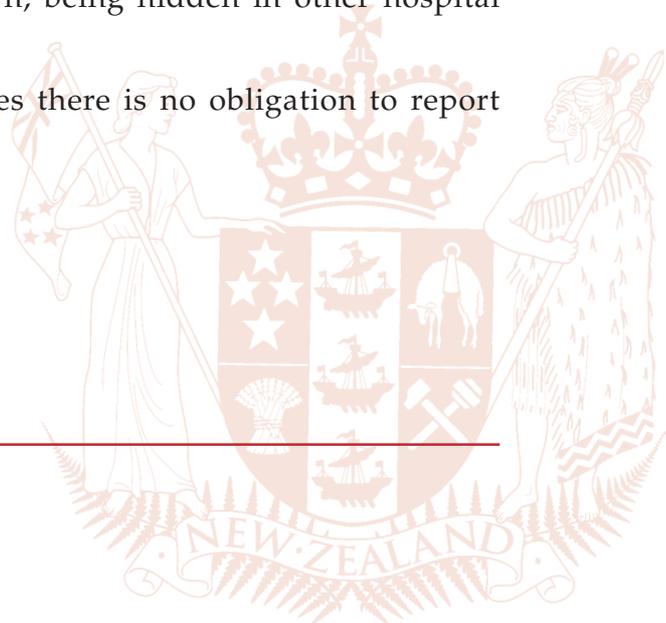
4.25 We would expect hospital General Managers (or their equivalent – for example, where responsibilities are delegated in a large DHB) to exercise a degree of oversight on resources applied to and money spent on infection control. However, the General Managers of only seven hospital services reported that they received regular reports from the infection control team on expenditure in managing hospital-acquired infection.<sup>55</sup> Five of these teams reported this information at least every six months. Eleven were not reporting infection control expenditure.

4.26 Limited reporting on expenditure is likely to reflect the fact that:

- not all hospital services have a separate budget for infection control;
- expenditure on infection control activities is low compared with expenditure on other hospital activities;
- the costs of controlling individual outbreaks (which can be considerable) are often not known, being hidden in other hospital budgets; and
- for some infection control services there is no obligation to report formally on their activities.

54 F3.4: Q18 & Q20.

55 F2: Q5, a.



### *Conclusions*

- 4.27 In hospital services without a separate budget for infection control, it is more difficult for managers to oversee and manage the resources dedicated to infection control. The money spent on infection control does not have a high profile with senior managers in many hospital services.

#### **Recommendation 13**

Hospital services should consider establishing separate infection control budgets, having regard to the benefits and drawbacks in terms of priorities for resource use, transparency, independence, and capability.

#### **Recommendation 14**

Hospital General Managers (or their equivalent) should monitor resources applied to infection control.

### **Staffing Infection Control**

- 4.28 The number of staff – including clerical staff – required to support an effective infection control programme will depend on the size and type of hospital, the services it delivers, and the population it serves. Infection control staff need to be able to carry out a wide variety of tasks, including:

- drawing up policies and procedures for infection control;
- providing advice, and monitoring and auditing the application of the policies and procedures;
- undertaking surveillance to detect hospital-acquired infections; and
- training other staff and raising their awareness of infection control issues within the hospital service.

- 4.29 Infection control teams are normally made up of hospital nursing and medical staff with the necessary training and skills. Skills and expertise not available within the hospital should be contracted in.

4.30 Our survey included questions about:

- the people and time dedicated to infection control;
- problems relating to resourcing of infection control;
- qualifications and training of infection control staff; and
- clerical support for infection control.

### *Survey Responses on People and Time Dedicated to Infection Control*

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4.31 We asked about:

- numbers of infection control practitioners and doctors with infection control responsibilities<sup>56</sup>; and
- whether there had been difficulties in recruiting infection control practitioners and/or doctors over the past two years and, if so, why.

4.32 We also asked infection control practitioners and doctors to:

- estimate the proportion of time they spent on different infection control activities;
- specify an ideal proportion of time they would wish to spend on these activities; and
- estimate how infection control practitioner and doctor time was divided between infection control work within and outside the DHB hospital service.

4.33 In more than two-thirds of hospital services, the number of infection control practitioners (in terms of full-time equivalent staff) had either increased or stayed the same in the previous two years.<sup>57</sup> Respondents reported a similar profile for infection control doctors over the same period.<sup>58</sup>

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56 These doctors are generally microbiologists and/or infectious disease specialists who are responsible for a range of services in the hospital, including infection control. We refer to them as “infection control doctors”, but infection control is only one of a number of activities in which they are involved. An infection control practitioner is usually a registered nurse with appropriate training and skills in infection control.

57 F3.2: Q8, a.

58 F3.2: Q8, b – five respondents did not complete this question.

## HOW INFECTION CONTROL IS ORGANISED AND MANAGED

4.34 The ratio of occupied beds<sup>59</sup> per infection control practitioner in each hospital service ranged from 114:1 to 365:1 (see Figure 7).

*Figure 7*  
*Ratio of Occupied Beds per Infection Control Practitioner at 1 July 2001<sup>60</sup>*



4.35 We expected the larger hospital services with tertiary<sup>61</sup> hospitals to have the highest ratio of infection control practitioners because these hospitals tend to:

- have high demand for beds and high throughput of patients; and
- carry out the most complicated operations and medical procedures for the most vulnerable categories of patient.

<sup>59</sup> *Bed occupancy* is a measure of the amount of time that hospital beds contain patients – as opposed to lying vacant until the next patient that needs the bed is admitted.

<sup>60</sup> F3.2: Q4; F1: Q4, a.

<sup>61</sup> We use the term *tertiary* to refer to those DHB hospitals providing very specialised care and performing the most complex procedures. These services are predominantly delivered by the DHBs based in major cities.

## HOW INFECTION CONTROL IS ORGANISED AND MANAGED

- 4.36 However, this expected pattern was not reflected in the survey results. We return to this matter in paragraphs 4.52-4.56 on page 91.
- 4.37 Employing infection control practitioners and infection control doctors can provide continuity and an infection control presence in the hospital. In most hospital services these staff are employees rather than contractors:
- in 17 hospital services, all infection control practitioners were employees<sup>62</sup>;
  - in 15 hospital services (not all of which were included in the 17) all infection control doctors were employees; and
  - the other six services assigned some responsibility to consultant doctors contracted to provide infection control expertise.<sup>63</sup>
- 4.38 In one small hospital service, both the infection control practitioner and the infection control doctor were contracted in. However, an infection control presence in the hospital was maintained by the employment of a nurse with infection control responsibilities.
- 4.39 The survey responses indicated that infection control practitioners spent most of their time working within DHB hospitals.<sup>64</sup> Eight infection control teams reported<sup>65</sup> that they performed an infection control role of some kind in the community. This role commonly involved providing advice, education, and other support to health care providers in the community and other agencies. Such services are valuable, but place additional demands on infection control practitioners, leaving less time available for work in the hospital.
- 4.40 In all hospital services, infection control doctors reported spending a relatively small proportion of their time on infection control tasks.<sup>66</sup> One service with a tertiary hospital reported that the infection control doctor spent 19.5 hours a week on infection control matters. Most infection control doctors in other hospital services spent considerably less time than this on infection control.

... Education and support is given to private hospitals for older persons and to residential care facilities. This extension is viewed as support for our community and is about prevention ...

62 F2: Q7a.

63 F2: Q8a.

64 F3.2: Q4.

65 F2: Q9.

66 F3.2: Q7.

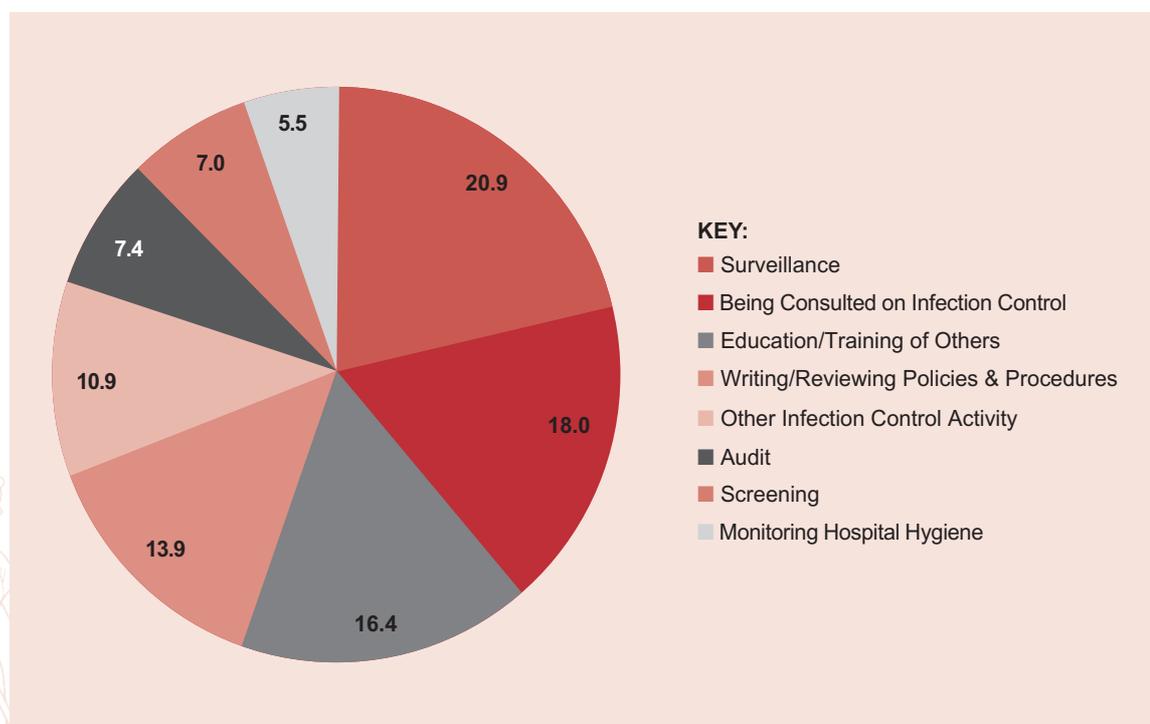
## HOW INFECTION CONTROL IS ORGANISED AND MANAGED

4.41 We compared the proportion of time that infection control practitioners and doctors spent on different infection control activities with the proportion they felt they should ideally spend. This comparison revealed no major discrepancies.<sup>67</sup> However, most practitioners and doctors had been unable to undertake all their planned hours of continuing education for the period January 2001 to January 2002.<sup>68</sup>

4.42 Figure 8 below shows the results of our analysis of how hospital services' infection control practitioners spent their time.<sup>69</sup>

... Education and policies/procedures [are] very important to verbally back/educate infection control practitioners and procedures. Surveillance [is] extremely important to identify and report relevant infections to improve practice, etc. Audits are also important to validate infection control practices are being performed and where improvements can be made ...

**Figure 8**  
*What Proportion of Time (%) Do Infection Control Practitioners Spend on Different Infection Control Activities?*



67 F3.2: Q2, A, B & D; Q5, A, B & D.

68 F3.2: Q20.

69 F3.2: Q2, A.

- 4.43 On average, in 2000-01, in all the hospital services:
- the three largest proportions of time were spent on surveillance (20.9%), responding to consultation by other staff (18.0%), and educating and training other staff (16.4%); and
  - only 5.5% and 7.4% of time respectively was spent on monitoring hospital hygiene and audit – which means that only a relatively small amount of time was being spent on checking that infection control policies and procedures were actually being applied.
- 4.44 There were wide differences between hospital services in the proportion of time spent on some infection control activities. The widest variation was in the amount of time spent on surveillance – one hospital service reported 60% of practitioner time spent on surveillance, while some others reported much less. (Part Seven on pages 151-172 examines the need for surveillance and the factors that might be expected to influence the amount of time that infection control practitioners spend on this activity.)
- 4.45 Time spent on monitoring hospital hygiene and on audit also varied markedly. One hospital service reported that its infection control practitioners spent 20% of their time on these two activities, while another reported that they spent no time on them. Part Six on pages 127-150 examines these activities.
- 4.46 The equivalent results for the proportion of medical time spent on infection control activities<sup>70</sup> were difficult to interpret. Six hospital services did not provide a response because the medical input was small and/or contracted in, and they felt unable to accurately assess the proportion of time spent on the various activities. A few responses suggested that most of the medical time would be spent giving advice.
- 4.47 Our analysis of the results of the 15 hospital services that provided useful data showed that, on average, more than 40% of doctor time<sup>71</sup> was spent on responding to requests for infection control advice. Audit took up an average of only 6% of doctor time. As for infection control practitioners, there was a wide range of responses – from no time spent on audit in six hospital services to between 2% and 24% in the rest.

70 F3.2: Q5.

71 Full-time equivalent – none of the doctors worked full time on infection control.

- 4.48 Few respondents to our survey reported problems recruiting doctors or infection control practitioners over the previous two years.<sup>72</sup> However, a small number referred to reluctance among doctors to work in infection control, which some see as a low profile role.<sup>73</sup> Some staff raised the same issue with us during our visits.

### Recommendation 15

Hospital services should review the way in which infection control staff spend their time, to ensure that key activities – such as surveillance, monitoring hospital hygiene, and audit – receive the appropriate attention.

### *Survey Responses on Access to Information Technology*

- 4.49 We asked whether infection control teams used computerised systems for recording and analysis to help manage their activities. Ten infection control teams had their own computerised systems.<sup>74</sup> Standard forms are commonly used<sup>75</sup>, with data often entered manually into a computer.<sup>76</sup> As outlined in paragraphs 7.37-7.41 on pages 162-163, access by infection control teams to hospital information systems is generally satisfactory.

### *Survey Responses on the Key Issues Relating to Resourcing of Infection Control*

- 4.50 We identified, from our preliminary work, the main problems that hospital services might experience in resourcing infection control. The two factors most often selected in the survey responses both related to available staff time rather than material resources. Respondents reported that:

- doctors had too little time available for infection control<sup>77</sup>; and
- infection control staff were unable to keep up to date with developments in infection control<sup>78</sup>.

<sup>72</sup> F3.2: Q10 & Q13.

<sup>73</sup> F3.2: Q16.

<sup>74</sup> F3.1: Q32.

<sup>75</sup> Examples supplied by survey respondents.

<sup>76</sup> F3.1: Q34.

<sup>77</sup> F3.4: Q21, b.

<sup>78</sup> F3.4: Q21, e.

- 4.51 Three of the six hospital services with tertiary hospitals expressed concern about the amount of doctor time available for infection control work. Four of the six were concerned about lack of time for ongoing education of infection control staff. These comments indicated that infection control staff might be facing work pressures.
- 4.52 In addition, two of the six hospital services with tertiary hospitals reported that they needed more infection control practitioners.<sup>79</sup>
- 4.53 Many hospital services take account of bed numbers when assessing the number and type of staff required for infection control. However, few systematically consider how intensively the beds are used – i.e. the numbers of patients moving through the hospital as inpatients, day patients, and outpatients. Intensity of bed use, and a number of other factors, have a bearing on the risk of hospital-acquired infection, and therefore need to be considered in making decisions about infection control staffing. The other factors include:
- the complexity of medical and surgical procedures and associated technology; and
  - patients' state of health and to what extent their treatment makes them more vulnerable to infection.
- 4.54 The absence of any clear relationship between staffing of infection control and the type of hospital service (see Figure 7 and paragraph 4.35) suggests that assessments of staff requirements may not be taking sufficient account of how factors relating to the type of services provided affect the risk of hospital-acquired infection.
- 4.55 Measuring the benefits of expenditure on infection control is difficult. Evidence of positive outcomes is needed to support a reliable assessment. Nevertheless, some international research has shown that expenditure on infection control activities can produce substantial savings.<sup>80</sup>
- 4.56 One hospital that we visited had produced a business case seeking additional infection control staff. It estimated that almost \$4 million could be saved each year through an expenditure of \$170,000. Based on a conservative estimate of hospital-acquired infection rates, the hospital estimated that it would save (in bed occupancy costs) at least 15 times what it would spend on additional infection control resources. The business case was accepted.

79 F3.4: Q21, a.

80 For example, Haley RW – see footnote 14 on page 24.

### Recommendation 16

In consultation with the Ministry, DHBs and hospital services should design a model to help determine the appropriate level of resources applied to infection control. The model should take account of all relevant factors – such as bed numbers, bed occupancy, complexity of medical and surgical procedures and associated technology, and patient mix.

### *Survey Responses on Qualifications and Training of Infection Control Staff*

- 4.57 Infection control staff need a wide knowledge of health care and medical disciplines, as well as microbiology and infectious diseases. Refresher training and continuing education are important to ensure that infection control staff are kept up-to-date with new developments.
- 4.58 We asked about the specialty of doctors with infection control responsibilities and the qualifications of infection control practitioners. We also asked whether infection control staff had the means to keep up-to-date with developments in the theory and practice of infection control.
- 4.59 Fourteen hospital services employed or contracted the services of individual doctors with a relevant clinical background to carry out infection control activities. In most cases they were infectious disease physicians or clinical microbiologists.<sup>81</sup> In the remaining cases, the infection control services were supported by doctors with an interest in infection control and/or by doctors engaged through DHB and private laboratory contracts.
- 4.60 Of the 52 infection control practitioners represented in the survey, all had some form of nursing or midwifery registration.<sup>82</sup> Almost all had undertaken or were undertaking some recognised infection control education.
- 4.61 Infection control practitioners had, on average, about six years' experience, but the extent of experience differed markedly between hospital services. For example, one had no infection control practitioners with more than one year's experience, while around a quarter of the infection control practitioners had 12 years' experience or more.

<sup>81</sup> F2: Q8b; F3.2: Q7.

<sup>82</sup> F3.2: Q4.

- 4.62 Newly employed infection control staff should have access to information that explains the role of the infection control team, hospital policies and procedures, and relationships with other parts of the organisation. One hospital service had produced a comprehensive orientation handbook for infection control practitioners, which provided helpful information and guidance in an accessible format.
- 4.63 Infection control practitioners had good access to material such as journals and infection control texts, providing them with the means to keep abreast of developments in infection control theory and practice.<sup>83</sup>

### *Survey Responses on Clerical Support*

- 4.64 Infection control typically involves large amounts of data entry and communication. To do this work cost-effectively, infection control practitioners need clerical support.
- 4.65 We asked infection control teams how much clerical support was provided for infection control practitioners and doctors. We also asked whether the clerical support was adequate.
- 4.66 Most infection control teams were not allocated any dedicated clerical support.<sup>84</sup> Only three of the 20 infection control teams that responded considered the level of support to be adequate for both infection control practitioners and doctors.<sup>85</sup> Responses included comments that<sup>86</sup>:
- clerical support had to be negotiated as necessary, with the result that infection control work could be given low priority; and
  - clerical tasks – such as data entry, photocopying, mail outs, and typing – consumed the time of infection control practitioners at the expense of core activities such as surveillance.

... We don't have enough time to do all the infection control activity we think is needed so having to spend time on clerical work (not our specialty) is frustrating and inefficient ...

83 F3.2: Q21, Q22 & Q23.

84 F3.2: Q19a.

85 F3.2: Q19b & Q19d.

86 F3.2: Q19e.

- 4.67 A comment by the infection control team at one large hospital is an illustration of what was commonly seen as a resourcing problem:

*There is one secretary to provide services for the Director of Microbiology, second microbiologist, 35 technical staff, a scientific officer, the vaccination clinic as well as infection control.*

### Conclusions

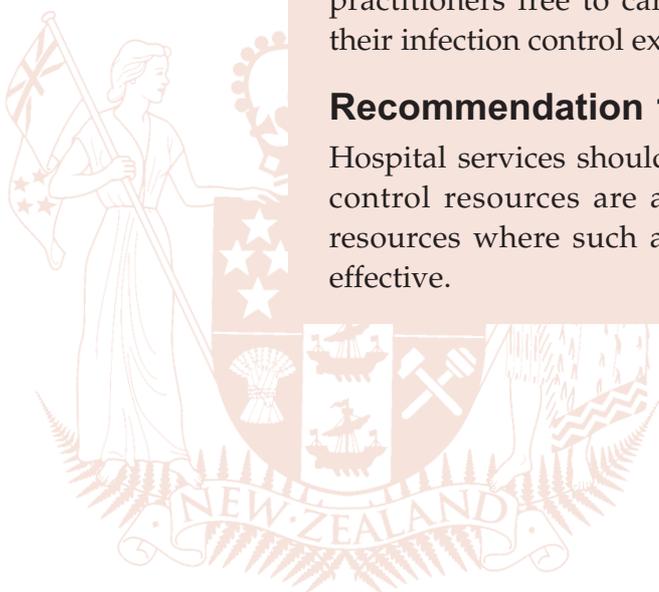
- 4.68 Overall, our findings painted a picture of a fairly stable and appropriately experienced infection control workforce. Clerical support for infection control is not adequate, and infection control staff were spending time on clerical work. This is not a good use of their skills and experience.
- 4.69 Some of the data from our survey (for example, the widely variable staff/bed ratio and the relatively little time spent in some hospital services on auditing compliance with infection control procedures) and the views from our survey respondents and people we met during visits, suggest that the human resources applied to infection control may not be sufficient in some hospital services.
- 4.70 Health and cost benefits may be gained from hospital services periodically reviewing their requirements for infection control resources, and increasing the resources where such additional expenditure is shown to be cost-effective.

#### **Recommendation 17**

Hospital managers should consider assigning additional clerical support to infection control practitioners, thereby leaving the practitioners free to carry out the wide range of tasks that require their infection control expertise.

#### **Recommendation 18**

Hospital services should periodically review whether their infection control resources are adequate, and look for ways of increasing resources where such additional expenditure is shown to be cost-effective.

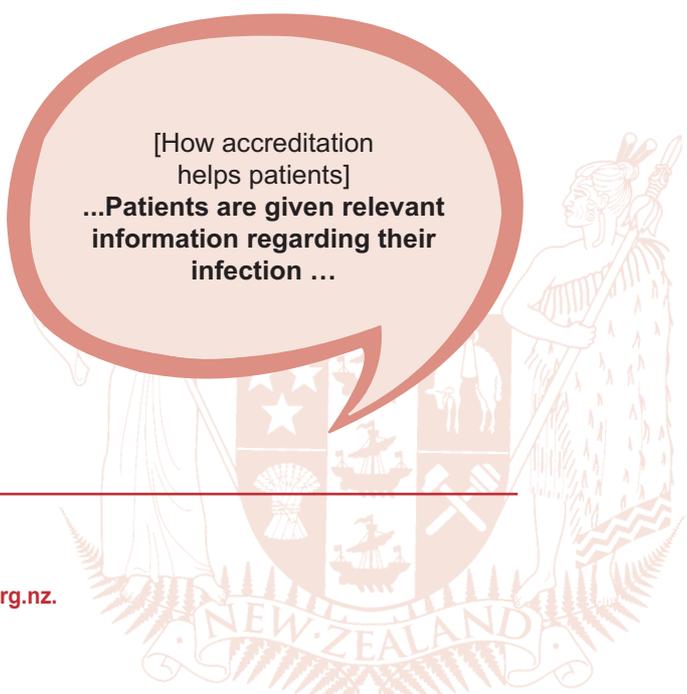


### Assurance about the Quality of Infection Control Systems and Practices

- 4.71 Two related processes provide important assurance to hospital managers about the quality of infection control systems and practices:
- undertaking voluntary accreditation to demonstrate adherence to specific standards of good practice; and
  - meeting the Standard in order to gain certification under the Health and Disability Services (Safety) Act 2001.

#### *Survey Responses on Voluntary Accreditation*

- 4.72 Voluntary accreditation provides independent assurance that a health service meets a recognised set of clinical and managerial standards. The Ministry has encouraged all DHBs to seek accreditation of their hospital services to help prepare for certification (paragraphs 2.21-2.23 on pages 44-45). We therefore expected all to have achieved accreditation, or to be actively taking part in an accreditation scheme. We asked whether hospital services had taken part in any accreditation scheme, and whether the scheme covered infection control.
- 4.73 Most hospital services were taking part in a voluntary accreditation scheme.<sup>87</sup> In 18 hospital services the accreditation had included aspects of infection control.<sup>88</sup> In more than half of hospital services, some or all hospitals within the service had achieved accreditation.<sup>89</sup>
- 4.74 Hospital services commented positively on the impacts of the accreditation surveys, noting that they reinforced good practice and identified areas for improvement – prompting the introduction of targeted action plans and ongoing reviews.



[How accreditation helps patients]  
**...Patients are given relevant information regarding their infection ...**

87 F3.1: Q15a.

88 F3.1: Q16.

89 Information obtained from [www.qualityhealth.org.nz](http://www.qualityhealth.org.nz).

### *Survey Responses on Compliance with the Infection Control Standard*

- 4.75 Hospitals will need to demonstrate that they meet the Standard in order to be certified. An accompanying workbook<sup>90</sup> provides an audit tool for organisations to evaluate their practices and procedures against the outcomes required by the Standard.
- 4.76 We asked whether:
- the Standard was used to provide guidance when infection control arrangements were being considered;
  - the hospital service also used the infection control audit tool; and
  - publication of the Standard and audit tool led to changes in infection control resources.
- 4.77 In all but one of the responses, hospital managers reported that they always used the Standard for guidance when considering infection control arrangements.<sup>91</sup> Only eight infection control teams responded that they were using the audit tool.<sup>92</sup>
- 4.78 The audit tool represents a valuable source of guidance, and infection control teams using it reported that the audit tool<sup>93</sup>:
- helped them to review infection control policy;
  - could be used for internal audits of infection control and for accreditation; and
  - recommended surveillance requirements that prompted a review of workload and resources and led to changes in the composition of the infection control team.

90 SNZ HB 8142:2001 *Infection Control Audit Workbook* – known as the audit tool.

91 F2: Q26.

92 F3.4, Q19a.

93 F2: Q28 – from respondents' notes to this question about the audit tool's effect on resources.

### Conclusions

- 4.79 Most hospital services have sought voluntary accreditation in preparing for certification by October 2004 and they have found the accreditation process helpful in improving practice.
- 4.80 The Standard is proving to be a valuable resource for hospitals in planning and implementing infection control.
- 4.81 There was only limited application of the infection control audit tool. It is possible that some hospital staff may not be aware of the audit tool and its value as a source of guidance.

### **Recommendation 19**

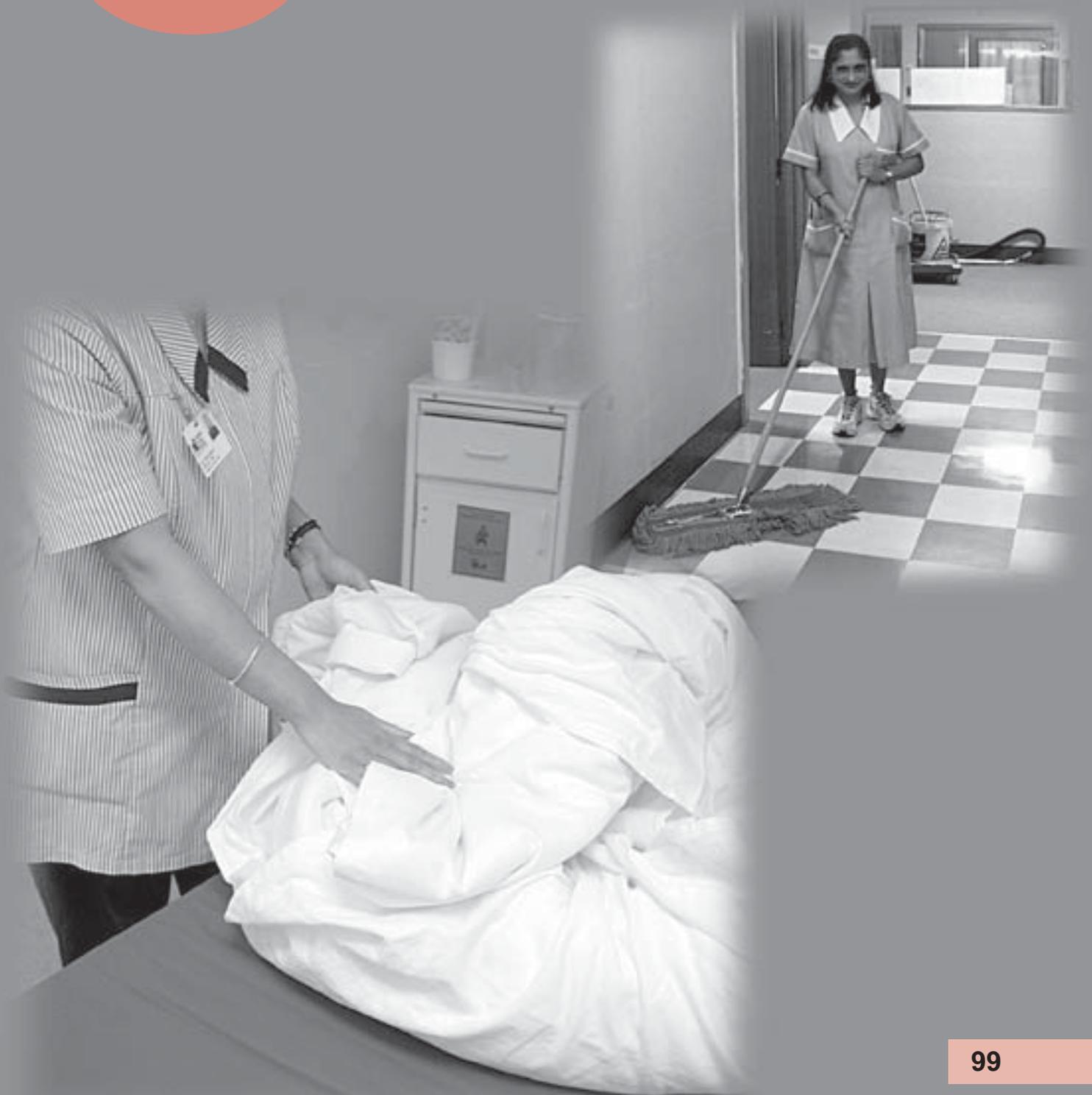
Hospital managers and staff should make use of the infection control audit tool (published by Standards New Zealand as a companion document to the Infection Control Standard).





## Part Five

# Relationships Between Infection Control and the Rest of the Hospital Service





### Introduction

- 5.1 Infection control is a hospital-wide function. Everyone working in a hospital has a part to play in making certain that infection control standards are applied. Ensuring that this happens should be a concern of a range of managers throughout the hospital, with overall responsibility resting with the General Manager.
- 5.2 Unlike most other clinical staff, infection control practitioners do not work in single hospital wards or units. Instead, their activities cover all parts of a hospital (or group of hospitals), and all aspects of day-to-day activities. Because their work has an impact on the work of many other staff – and in many cases needs to influence the way their work is done – it is important that the functions and responsibilities of infection control practitioners are well recognised and understood.
- 5.3 Equally, infection control staff do not work within a clinical hierarchy in the same way as other nurses or doctors. In order to fulfil their infection control responsibilities, staff in the infection control team must have the authority to examine policies, procedures, and practices throughout the hospital. They must be able to scrutinise the practices of even the most senior medical consultants – otherwise there will be gaps in the management of infection control that will put the hospital service at risk.
- 5.4 These key features have two important implications for the relationships between infection control staff and other staff in the hospital service. Infection control staff:
- must have the necessary authority and recognition within the hospital service to enable them to do their job properly; and
  - need to communicate effectively and establish credibility with staff and managers at all levels, so that their guidance is readily accepted and applied.
- 5.5 In this part we examine:
- the role and organisation of infection control committees;
  - use of nominated infection control representatives in parts of the hospital (such as wards);
  - links between infection control and hospital services' overall management of risk;

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

- how infection control staff work together with occupational health and laboratory services<sup>94</sup>;
- links with Medical Officers of Health (who are responsible for controlling the impact and spread of communicable diseases in the community); and
- getting the hospital environment right for infection control, so that the risks of hospital-acquired infection are minimised.

### Role and Organisation of the Infection Control Committee

5.6 The infection control committee plays a vital role in supporting the infection control team and overseeing the co-ordination of infection control matters throughout the hospital service. In extreme circumstances, the role of infection control practitioners may lead to confrontation with colleagues – for example, where a colleague refuses to accept that they need to improve their hygiene practice. Infection control staff need to be:

- strongly supported within the hospital structure;
- able to draw on the expertise of a wide range of disciplines; and
- able to refer to a body of objective research and knowledge in order to give practical authoritative advice and promote credible improvements.

5.7 The infection control committee should include representation from relevant disciplines within the hospital service. The purposes of the infection control committee are to:

- assist in the establishment of the infection control programme, and approve the programme in consultation with other key clinical staff or departments;
- ensure that the necessary resources are available to implement the programme, and assist in its implementation where required by providing support to members of the infection control team;

<sup>94</sup> Infection control and the hospital pharmacy also need to work effectively together – this relationship is mainly considered in Part Seven on *Screening and Surveillance to Identify Hospital-acquired Infection* (see pages 151-172).

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

- monitor and review the programme; and
- report regularly to hospital management on risks to patient care, systems failures, infection outbreaks, and audit results.

### *Survey Responses on the Organisation of Infection Control Committees*

5.8 We asked:

- how often the committee met, and who were its members; and
- how often members attended meetings of the committee.

5.9 All hospital services had an infection control committee. Most committees met at least monthly.<sup>95</sup>

5.10 Among their members, the committees most commonly included infection control practitioners and doctors, and representatives from the hospital laboratory (see Figure 9 on the next page). Often, the Medical Officer of Health was a committee member, thereby potentially providing a useful link between the hospital service and the community on communicable diseases. In smaller hospital services, often the hospital's General Manager or representative was a committee member, reflecting differences in structure between larger and smaller hospital services.

5.11 Hospital staff are exposed to the risk of acquiring infection through various forms of contact with patients, such as blood and body-fluids. However, only 12 committees included an occupational health nurse, making it less likely that staff health and welfare matters – such as staff exposure to infection – would come to the attention of the committee. Without occupational health service representation, the committee would also be less likely to identify and consider the infection control policies and practices that might promote the health and welfare of staff.

**... Representation at these  
[Infection Control Committee]  
meetings continues to be a  
problem ...**

95 F2: Q19 & Q20.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

*Figure 9*  
*Who Are Members of the Infection Control Committee?*<sup>96</sup>

Does the Committee have a member in this staff category?	Yes	No
Infection Control Practitioner(s)*	20	0
Doctor(s)	20	1
Microbiology (i.e. laboratory) representative	20	1
Medical Officer of Health	17	4
Director of Nursing	13	8
Risk or Quality Improvement Manager*	12	8
Occupational Health Nurse(s)*	12	8
Pharmacist	11	10
Medical Director	10	11
Services manager(s)	10	11
Representative from other hospitals covered by Committee	7	14
Hospital General Manager or representative	6	15
Community representative	5	16
Maori Health representative*	2	18

\* In each case one respondent did not answer this part of the question.

**5.12** Hospital pharmacists are a key professional group whose work brings them into contact with staff and patients throughout the hospital service. They are responsible for promoting prescribing practices that minimise the infection risks associated with organisms that become resistant to antibiotics. Their knowledge and experience is therefore essential to the infection control committee's work. However, only 11 of the respondents had a pharmacist as a member of the committee.

<sup>96</sup> F2: Q21, A.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

- 5.13 Most hospital services reported that infection control practitioners, laboratory representatives, and pharmacists (where they were members of the committee) always attended the meetings of the infection control committee.<sup>97</sup>
- 5.14 However, only a little more than half of committee members in other staff categories always attended the meetings.<sup>98</sup> Only one-third of respondents reported that three key categories of staff – Medical Officers of Health, risk managers, and occupational health nurses<sup>99</sup> – always attended the meetings.

### *Survey Responses on Meeting Minutes and Annual Reports*

- 5.15 We asked whether minutes were made of infection control committee meetings, whether the infection control committee produced an annual report, and if so who received these documents.
- 5.16 All respondents reported that minutes were made of infection control committee meetings.<sup>100</sup> In all but one hospital service the members of infection control committees received copies of the minutes (see Figure 10 on the next page).
- 5.17 Managers or groups with responsibility for oversight of clinical risk and practice within the hospital service should receive minutes of infection control meetings. Such groups would include the quality or risk management committee and the clinical governance committee (or equivalent). As shown in Figure 10, two-thirds of quality or risk management committees received the minutes, compared with only half of the clinical governance committees.

97 F2: Q21a, B – f, k, j.

98 F2: Q21a, B.

99 F2: Q21a, B – n, b, h – out of 21 hospital services; this includes hospital services that excluded these categories of staff as members (see Figure 9 on page 104).

100 F2: Q22.



## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

*Figure 10  
Who Receives the Minutes of Infection Control Committee Meetings?<sup>101</sup>*

	Receives	Does not receive
Members of the Infection Control Committee	20	1
Hospital General Manager	15	6
Director of Nursing	15	6
Quality or Risk Management Committee	14	7
Medical Director	13	8
Clinical Governance Committee or equivalent*	10	10

\* One respondent did not answer this part of the question.

5.18 Annual reports on infection control can serve a number of purposes by:

- summarising data on, and analysis of, rates and types of hospital-acquired infection over time;
- documenting the causes of outbreaks that occurred over the period, how they were managed, and lessons learned from the experience;
- reporting on the results of monitoring and audit of compliance with infection control policies; and
- outlining infection control strategies for the coming year to address identified concerns.

5.19 Seven respondents told us that their infection control committee produced an annual report.<sup>102</sup> All but one sent the annual report to the hospital general manager, the medical director, and members of the infection control committee. Most also provided the report to the quality or risk management committee (five of the seven) and to the director of nursing (four of the seven). However, only two provided the report to the clinical governance committee (or its equivalent).<sup>103</sup>

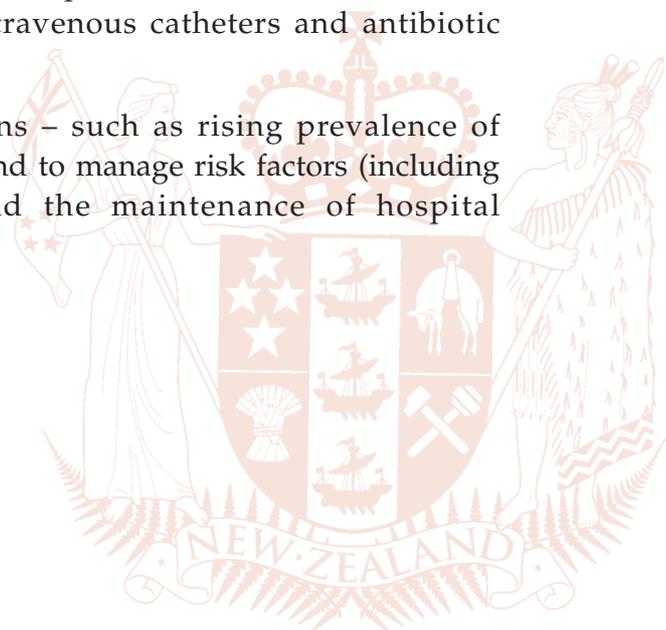
101 F2: Q24, A.

102 F2: Q23.

103 F2: Q24, B, c.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

- 5.20 Four of the six with tertiary hospitals (where the risks of hospital-acquired infection are highest) produced comprehensive annual reports. These reports:
- helped to raise the profile of the infection control service and its staff;
  - provided a useful summary for managers and clinicians; and
  - served as a basis for planning into the next period.
- 5.21 The annual report that one infection control team sent to us contained the following information on performance and risk that hospital managers and (potentially) the Board of the DHB would find valuable:
- rates for both hospital-acquired bloodstream and surgical wound infections had declined on average by 20% compared with the previous year;
  - the circumstances surrounding the incidence of infection were analysed and reasons suggested for changes in rates for specific infection types;
  - micro-organisms discovered through laboratory examination were analysed for comparison with the previous year – analysis showed an increase in the prevalence of *Clostridium difficile* isolates, an organism associated with cross-infection and the prescribing of particular antibiotics;
  - an estimate of the direct and indirect costs associated with treating types of hospital-acquired infection for different patient groups;
  - action plans for changes to practices that had contributed to increases in infection rates (such as practices associated with the insertion and maintenance of intravenous catheters and antibiotic prescribing); and
  - a programme to address concerns – such as rising prevalence of multi-drug-resistant organisms – and to manage risk factors (including hospital hygiene, cleaning, and the maintenance of hospital equipment).



## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

### *Conclusions*

- 5.22 In most hospital services, membership of the infection control committee reflected the range of infection control interests throughout the organisation.
- 5.23 However, eight of the committees had no occupational health representation, making it less likely that committee discussions would have adequate regard to policies and practices that might promote the health and welfare of staff. Similarly, we were concerned that almost half had no pharmacy representative – given pharmacists' key role in promoting prescribing practices that minimise the risk of antibiotic resistance.
- 5.24 With some members absent from the committee meetings, discussion of infection control matters may not take account of all relevant views and considerations, and valuable knowledge and experience may not be shared. Irregular attendance may also reflect a lack of proper commitment to, and support for, infection control within the hospital service.
- 5.25 Communication is an important function of any infection control committee, but few committees reported on their year's activities. Those that did so distributed the reports widely to hospital managers and others, and the reports we saw were informative – providing useful summaries of performance and plans.

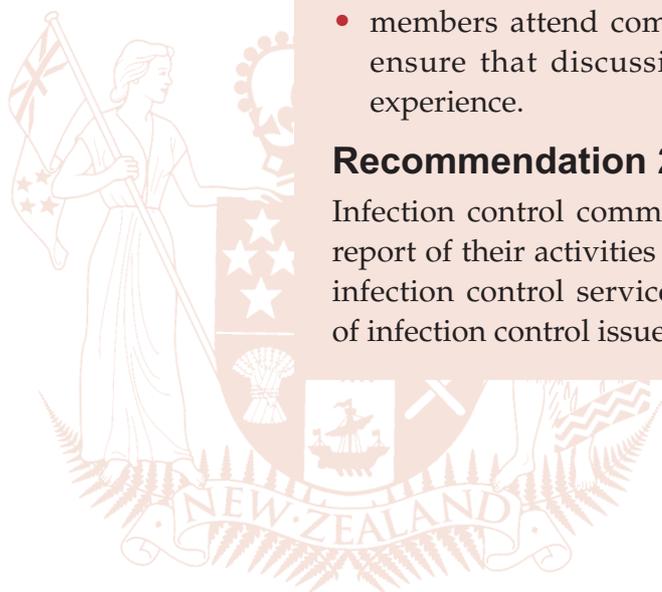
### **Recommendation 20**

Hospital services should ensure that:

- their infection control committee includes representation from occupational health and the hospital pharmacy; and
- members attend committee meetings on a regular basis, to help ensure that discussions draw on the full range of views and experience.

### **Recommendation 21**

Infection control committees should consider producing an annual report of their activities and plans, to help maintain the profile of the infection control service and to keep staff and managers informed of infection control issues.



### Use of Infection Control Representatives

5.26 In some hospitals, clinical staff are nominated as infection control representatives. They are usually nurses who have been given additional training in promoting and advising on good infection control practice. These representatives complement, but should not take the place of, infection control practitioners.

#### *Survey Responses on Infection Control Representatives*

5.27 We asked whether hospital services had infection control representatives and how successfully they were used.

5.28 Two-thirds had infection control representatives who mainly worked in ward areas.<sup>104</sup> These representatives had an important role in raising staff awareness of infection control matters, sharing knowledge with peers, and helping with surveillance and early detection of outbreaks.

5.29 To be successful, a network of infection control representatives needs to be actively managed and promoted. From the survey responses<sup>105</sup> and discussions during our visits, we noted a number of barriers to making best use of representatives:

- where staff turnover is high, it is difficult to maintain continuity of experience and knowledge among representatives;
- the full value of training new representatives may not be gained when they leave their job after only a short time;
- pressure of work can leave the representatives with little time for infection control activities. There may be few opportunities to attend meetings and training, and limited access to resources and management support; and
- little recognition may be given to a role that is voluntary and involves extra responsibility.

...[Infection control representatives'] **input into our policies/procedures assists us in making them 'workable' and 'user friendly' so implementation is easier ...**

104 F3.1: Q20 & Q23.

105 F3.1: Q21 & Q26.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

5.30 One hospital that we visited had drawn up a detailed description of infection control representatives' role and responsibilities. The description included reference to a range of tasks – attending meetings, helping to resolve infection control issues, introducing infection control initiatives in their area, participating in quality improvement teams, and consulting with the infection control team.

... We have some excellent reps. There is difficulty in getting representatives for all wards/units as it is a voluntary position ... some units struggle to find volunteers ...

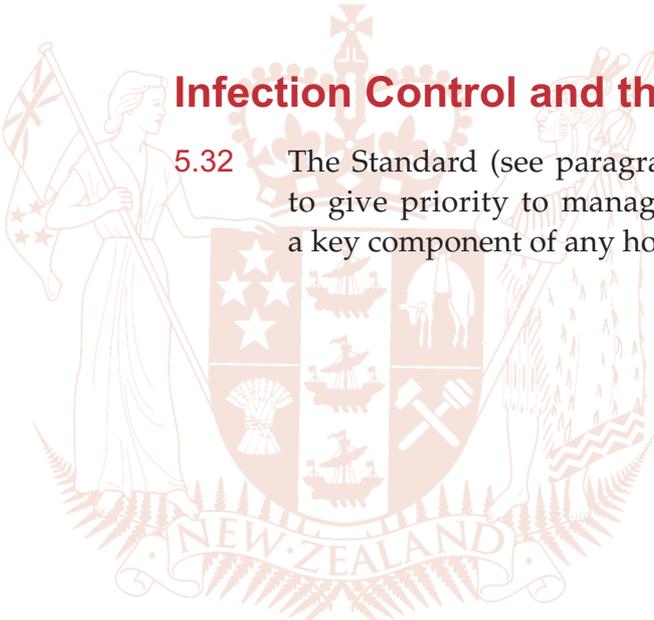
### Conclusions

5.31 Infection control representatives can play an important part in raising staff awareness of infection control and in promoting good clinical practice. Two-thirds of DHB hospitals had infection control representatives, but there were barriers to making best use of them. Clearly defining the role and responsibilities of infection control representatives is an essential first step towards ensuring that they are used well and identifying what support they need.

**Recommendation 22**  
 Hospital services should consider the merits of putting in place a network of infection control representatives (or review the effectiveness of the existing network), having regard to both potential benefits and the obstacles to making best use of the network.

### Infection Control and the Management of Risk

5.32 The Standard (see paragraph 2.27 on page 46) requires hospital services to give priority to managing infection risk. Infection control should be a key component of any hospital risk management programme.



### *Survey Responses on the Links between Infection Control and Risk Management*

5.33 We asked hospital services whether their infection control programme was linked to the quality improvement or risk management programme. Four (including two of the six that have tertiary hospitals) reported that they made no link between the infection control and risk management programmes.<sup>106</sup>

... The Infection Control programme is incorporated into the surgical service plan and linked to the Risk Management programme through the Risk Management Committee ...

5.34 Figure 11 (on the next page) contains extracts from the risk register of a large DHB that we visited. In this example, 'high risk' is intended to mean that senior management attention is required, and 'low risk' that management by routine procedures is sufficient.<sup>107</sup>

5.35 One smaller hospital service had drawn up a set of infection control indicators that were referenced to its Quality and Risk Management Plan, with results reported to the DHB. The indicators used clear definitions to describe hospital-acquired infection, making it possible to measure data collected through the infection control database and incident reports. The Plan also contained a schedule of infection control audits to be undertaken, outlining:

- the scope of the audit (such as an audit of hand hygiene or of the food services area);
- the audit method to be followed;
- the performance target to be met; and
- the source of audit data.

106 F3.3: Q6a.

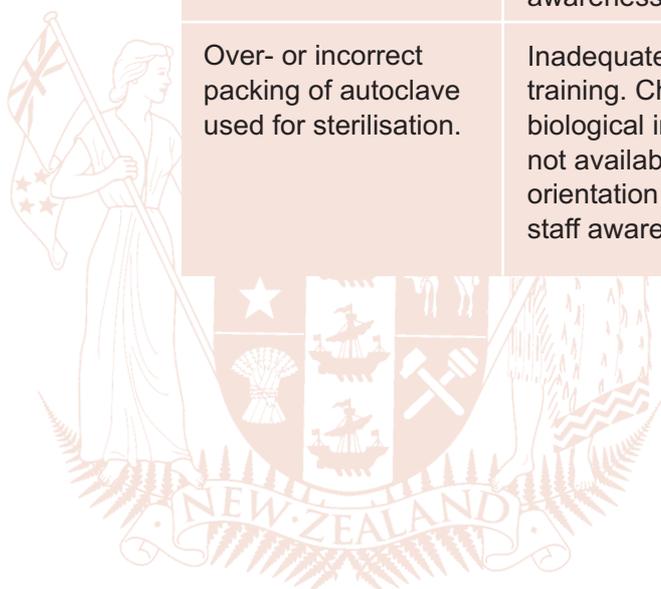
107 AS/NZS 4360:1999.



## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

*Figure 11  
Illustration of Infection Control Risks Extracted from the Risk Register of One DHB*

Description of Risk	How could this happen?	What can we do to prevent it?	How high is the risk?
Ongoing exposure of staff and patients to tuberculosis.	No formal contact-tracing procedures for staff. No testing for new staff.	Address through occupational safety and health programme.	High
Emergence of multi-resistant organisms.	Indiscriminate prescribing of antibiotics.	Educate doctors. Prepare guidance sheet.	High
Lack of formalised staff health programme.	Service not managed by the DHB. Crisis management on an as-needs basis provided inappropriately by infection control staff, which sacrifices other infection control activities.	Recommendation documented by the Infection Control Committee to the Clinical Practice Committee for an Occupational Health and Safety programme.	High
Chemical/biological indicators not in use in autoclaves used for sterilisation.	Inadequate staff training. Chemical/biological indicators not available. Lack of orientation and staff awareness.	Education/orientation at departmental level.	Low
Over- or incorrect packing of autoclave used for sterilisation.	Inadequate staff training. Chemical/biological indicators not available. Lack of orientation and staff awareness.	Education/orientation at departmental level.	Low



- 5.36 Reporting of infection control matters should also form part of a hospital service's reporting of organisational risk. One infection control committee was reporting to the risk committee, along with other clinical committees, including the Drug and Therapeutic Committee. This reporting facilitated a co-ordinated approach to different areas of hospital practice related to infection control – such as antibiotic prescribing, and re-use of medical items.

### *Conclusions*

- 5.37 Not all hospital services were taking a co-ordinated approach to risk assessment that encompassed infection control.

#### **Recommendation 23**

Hospital services should use a risk-based approach for their infection control planning, and integrate infection control into their quality assurance and risk management programmes.

### **Working with Occupational Health Services**

- 5.38 Protecting the health, safety, and welfare of staff is consistent with the statutory good-employer obligations of DHBs, and with their responsibilities under the Health and Safety in Employment Act 1992.
- 5.39 The infection control programme should encompass, or be closely related to, employee health programmes designed to:
- protect staff from exposure to infection; and
  - detect and monitor staff who may be colonised<sup>108</sup> or infected with a communicable disease posing a risk to patients, their colleagues, and others in the hospital (paragraphs 7.14-7.20 on pages 156-158 examine screening of staff to identify infection).

108 In a colonised person, the organism is present in the person's body but has not caused an infection in that person.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

### *Survey Responses on Occupational Health Services*

5.40 Occupational health and infection control services each have their own distinct, but closely related, focus. We asked about the relationship between occupational health and infection control services, and how well the two groups worked together.

... Offices located beside each other, in the same department. Daily dialogue occurs, especially around staff safety, needle-stick injuries etc ...

5.41 Nineteen hospital services reported that occupational health and infection control services were provided by separate groups.<sup>109</sup> Most also reported that this arrangement worked well and some gave the following reasons:<sup>110</sup>

- staff had complementary knowledge, which helped to ensure that they communicated effectively and worked well together;
- roles and responsibilities were clearly defined;
- the arrangements worked best in hospital services that provided adequate resources for both occupational health and infection control;
- the services co-ordinated their efforts on matters of common concern (such as pre-employment screening of staff, tracing staff for patient contact, and screening staff for infection); and
- they provided cover for staff in periods of leave.

5.42 One hospital service noted that the relationship worked well because the occupational health nurse sat on the infection control committee, and so was well aware of staff issues with infection control implications. The infection control practitioner and the occupational health nurse met to discuss staff issues of mutual interest, and the infection control team was able to provide cover for matters relating to staff exposure to blood and body-fluids, and screening new staff. Occupational health and infection control staff together screened staff in the event of an outbreak, and jointly followed up staff who had been exposed to an infectious disease.

<sup>109</sup> F3.1: Q30.

<sup>110</sup> F3.1: Q31a & Q31b.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

- 5.43 Responsible occupational health practice requires hospital managers to make staff aware of precautions they can take to avoid or mitigate health risks from exposure to infection. It should make certain that all possible measures are in place to ensure safe working conditions. Concerns about staff welfare were raised in the course of our hospital visits and in survey comments. For example, in one hospital we visited, the occupational health service had a limited role in relation to infection control. As a result, the occupational health service was poorly placed to follow up at-risk staff by taking the necessary actions to improve staff education and address hazards in the hospital environment.
- 5.44 The same hospital's annual blood and body-fluid exposure report showed that staff had reported more than 300 incidents over the period. Most of these incidents were not entirely avoidable given the nature of their work. However, there were other measures that the hospital could have taken to reduce the level of risk. For example, the hospital was not:
- screening new staff for infectious agents (such as Hepatitis B) other than MRSA; or
  - offering staff free vaccinations as an incentive to obtain protection.
- 5.45 Blood test results from staff after the 300 incidents showed that more than 20% of staff were not immune to Hepatitis B. Blood tests of the patients involved showed that 2% were infected with Hepatitis B, 8% were infected with Hepatitis C, and one patient was HIV positive.

### *Conclusions*

- 5.46 Occupational health and infection control services were almost always delivered separately. In most hospital services, the two service groups were well co-ordinated and were collaborating in a positive way to provide a safe environment for patients and staff. However, concerns were also expressed – including some from staff in larger hospitals – about the delivery of infection control services relating to staff health.

#### **Recommendation 24**

Hospital services should ensure that the activities of occupational health and infection control are well co-ordinated, and that the two groups collaborate in the interests of patient and staff safety.

### Working with Laboratory Services

5.47 The working relationship between the infection control team and the hospital's laboratory is very important. Information from laboratory tests enables hospitals to identify infectious diseases, determine the prevalence of infectious organisms, and establish whether those organisms are susceptible to antibiotics and other drugs. Infection control teams and laboratory staff should work as a team to identify and control outbreaks when they occur.

#### Survey Responses on Laboratory Services

5.48 Members of the infection control team should have frequent contact with laboratory staff and the two professional service groups should freely share appropriate information. We asked whether:

- the hospital laboratory was conveniently located for infection control purposes;
- the organisation and scope of laboratory services were clear; and
- the infection control team had ready access to laboratory services at all times.

5.49 Finally, we asked infection control teams to rate the performance of the hospital laboratory.

5.50 Nineteen infection control teams considered the laboratory to be very or fairly conveniently located for their purposes.<sup>111</sup> Staff from one of the other two teams had to make a 20-minute journey to the laboratory every morning. In the other case, the hospital site was very large and access to laboratory services was difficult.<sup>112</sup>

5.51 Most infection control teams were confident that they had a full understanding of the organisation of the laboratory and the scope of the services provided.<sup>113</sup>

111 F3.1: Q39a.

112 F3.1: Q39b.

113 F3.1: Q40, A & B.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

5.52 Laboratories must be able to respond quickly to possible outbreaks by carrying out diagnostic tests to enable precautionary measures to be taken. Nearly all teams reported that they had urgent access to laboratory services at all times.<sup>114</sup> One small hospital service noted that access was limited outside normal working hours, with only two staff available after hours or on public holidays.

5.53 Twenty infection control teams assessed the laboratory service as effective or very effective.<sup>115</sup> Among the reasons given for the assessment were that:<sup>116</sup>

- the infection control team and laboratory personnel worked well together;
- the laboratory service was accredited, and so met independent quality standards;
- the laboratory provided high-quality testing, and prompt, reliable results, and could carry out urgent tests after hours; and
- the laboratory technologist sat on the infection control committee, which helped to keep infection control staff informed about matters such as antibiotic-resistant organisms and notifiable diseases.

... very professionally managed, high level of quality assurance, able to respond to requests rapidly, experienced staff, good equipment, easily accessible, quick response to requested tests, 24-hour service ...

5.54 The one infection control team that was less satisfied with the laboratory service cited inadequate arrangements for supervision by a medical microbiologist – who was based about 800 kilometres away and visited only twice a year. However, the team described the technical capability of the laboratory as “excellent”.

### Conclusions

5.55 Infection control teams had positive working relationships with laboratory staff, with generally good access and evidence of constructive collaboration on infection control matters of common interest.

114 F3.1: Q42.

115 F3.1: Q43a – one assessed the laboratory as “fairly effective”; none assessed the laboratory as “not at all effective”.

116 F3.1: Q43b.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

### Links with Medical Officers of Health

**5.56** Infectious diseases can pass between the hospital and the community – people may bring infections into a hospital, and patients may take infections into the community when they are discharged. Hospital-acquired infection is therefore a safety issue for both hospitals and the community.

**5.57** Twenty-four Medical Officers of Health are employed by and based in DHBs' public health care services.<sup>117</sup> The Health Act 1956 gives them wide-ranging powers to deal with national and local outbreaks of infectious disease that have implications for the public. Associated activities include:

- identifying risks and drawing up contingency plans to respond to outbreaks;
- investigating suspected incidents, cases, and outbreaks; and
- taking measures to control the spread of disease.

**5.58** Most infection control teams considered that the Medical Officer of Health should ideally have a key role in infection control within the hospital service, and agreed that the Officer should<sup>118</sup>:

- be a member of the infection control committee;
- work with the infection control team in managing outbreaks;
- provide epidemiological<sup>119</sup> advice;
- ensure that relevant hospital staff understand the infection risks in the community and the different approaches to controlling them; and
- contribute to the flow of information between the hospital service and public health officials.

... The Medical Officer of Health is a member of the Infection Control Team and is actively included in infection control policies and issues ...

<sup>117</sup> The term *health care services* means services that are hospital care, residential disability care, rest home care, or specified health or disability services.

<sup>118</sup> F3.1: Q28.

<sup>119</sup> Epidemiology is the study of the distribution and determinants of health and disease in the community.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

- 5.59 Most DHBs did not make full use of Medical Officers of Health for these purposes.
- 5.60 The Health Act 1956 specifies those diseases that must be notified to Medical Officers of Health. These *notifiable* diseases do not include most infections acquired in hospitals, so there is no statutory requirement for hospitals to notify them.
- 5.61 In our view, there are still good reasons to involve Medical Officers of Health in the event of any outbreak of a hospital-acquired infection. In their statutory role, Medical Officers of Health gain experience and knowledge in the management of infectious disease outbreaks, and are familiar with methods of tracing sources of infection and controlling its spread. This expertise is available and valuable for hospitals to draw on to prevent and contain hospital-acquired infection.

### *Survey Responses on Medical Officers of Health*

- 5.62 We asked senior hospital managers if the service agreement between the DHB and the hospital service required the Medical Officer of Health to be notified in the event of a communicable disease outbreak in the hospital.<sup>120</sup>
- 5.63 In 14 DHBs, a service agreement or contract required the hospital to notify and seek advice from the Medical Officer of Health in at least some circumstances, but almost all of these DHBs expected their hospitals to notify the Medical Officer of Health only where there was a statutory requirement to do so – reflecting a limited interpretation of the role. In only two DHB hospitals was there a wider requirement to notify the Medical Officer of Health. In those cases the Officer was:
- notified of non-notifiable disease outbreaks with potential impacts on service delivery or community health (such as MRSA); or
  - consulted informally or approached for advice in their capacity as a member of the infection control committee, or through their involvement in the drawing up of infection control policies.
- 5.64 Prompt reporting of infectious diseases is vital for effective planning and response, and assists with infectious disease surveillance. A patient's doctor is responsible for notifying the Medical Officer of Health of notifiable diseases. However, there is a risk that busy medical staff could at times overlook this responsibility.

<sup>120</sup> F2: Q14a & Q14b.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

- 5.65 In May 1997, the Ministry's Infectious Diseases Advisory Committee agreed that laboratories should be able to report any notifiable disease-causing organisms directly to Medical Officers of Health (in addition to reporting them to individual responsible doctors). However, more than five years later, only half of hospital services said that they had put in place arrangements whereby the hospital laboratory reported notifiable diseases directly.<sup>121</sup>

### *Conclusions*

- 5.66 Where Medical Officers of Health perform a wide role, they are more likely to act as an effective link between the hospital and the community on public health – including helping to prevent and manage hospital-acquired infection. Infection control teams appreciated the value of Medical Officers of Health carrying out this wide role, but most hospital services were not fully using the Officers in this way.
- 5.67 Most DHBs required infectious diseases to be notified only as expressly prescribed under the Health Act 1956. In addition, around half of hospital services have continued to rely on individual doctors to report notifiable diseases to the Medical Officer of Health, rather than establish direct reporting by laboratories. Where there is no direct reporting, the risk remains that not all notifiable diseases are being notified.

#### **Recommendation 25**

DHBs should specify in their service agreements with hospitals the role of the Medical Officer of Health as a public health link between the hospital and the community on the management of hospital-acquired infection.

#### **Recommendation 26**

Hospital services that do not yet have arrangements for their laboratories to report notifiable diseases directly to the Medical Officer of Health should consider the need to put such arrangements in place.

<sup>121</sup> F3.1: Q29.

### Creating the Right Hospital Environment for Infection Control

- 5.68 Changes to the hospital environment – such as the purchase of products or equipment, alterations to the building, and/or changes in service contracts – can create new risks of infection for patients and staff. Infection control teams should therefore be consulted when changes are proposed.
- 5.69 Aspects of the physical design of hospitals that need to be considered in minimising infection include:
- separation of waste collection and cleaning areas from areas occupied by patients and food preparation facilities;
  - effectiveness of ventilation and lighting;
  - provision of adequate storage to reduce clutter and allow effective cleaning in the ward or department, and good access to the storage area so that it can be cleaned easily and protected from contamination;
  - features of patient accommodation, such as access to hand basins; and
  - provision of single rooms for patients who need to be accommodated separately for the protection of their own and/or others' health.
- 5.70 The following paragraphs look at how hospital services are consulting infection control staff about building and equipment changes and reviews of contracts for services such as catering.

### *Survey Responses on Consultation About Building and Equipment Changes*

- 5.71 We asked whether and how often the infection control team was consulted about the purchase of new equipment or plans for alterations or renovations to hospital buildings.
- 5.72 Only six hospital services reported that their infection control teams were always consulted to ensure that infection control requirements were considered when new equipment was being purchased.<sup>122</sup> Without such consultation, the infection control risks associated with new equipment may be overlooked. Other hospital services told us that their teams were sometimes consulted on new equipment, except for one team that was rarely consulted.

<sup>122</sup> F3.1: Q8.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

- 5.73 Similarly, only five hospital services reported that their infection control team was always consulted when plans for alterations or renovations to hospital buildings were being discussed.<sup>123</sup> All other respondents said that their team was sometimes consulted.
- 5.74 Building construction, renovation, and demolition release into the air large amounts of dust which may contain fungal spores. Most fungal organisms pose little risk to healthy people, but in sick patients (under medical treatment and with low immunity) such organisms can lead to severe infections.
- 5.75 In one hospital that we visited, major construction activities were under way, posing risks to patients with low immunity. The infection control team had formed a sub-committee to review the risks and promulgate guidelines to minimise exposure. It had established the following key strategies:
- Infection control staff should be consulted when construction, renovation, or demolition activities were proposed.
  - Environmental monitoring would be undertaken to identify the need for measures to prevent exposure to dust.
  - The health of at-risk patients would be monitored through periodic testing to detect infection so that, when necessary, early treatment could be initiated.
  - The sub-committee would meet regularly to review its recommendations and monitor compliance.

### *Survey Responses on Consultation About Catering Contracts*

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- 5.76 Nineteen hospital services had catering contracts in place.
- 5.77 Unhygienic food handling facilities and practices can cause infection to spread rapidly through a hospital. Infection control teams should monitor the preparation, distribution, and storage of food to help ensure safe practice.
- 5.78 Hospital managers should obtain assurance that any contractor providing a catering service operates a system of checks to ensure that safe food handling practices are consistently followed. In obtaining this assurance, the advice of the infection control team should be sought.
- 

<sup>123</sup> F3.1: Q9.

- 5.79 Therefore, we asked whether the infection control team was involved when the catering contract was reviewed.<sup>124</sup> Six hospital services said they always involved their infection control team. However, 10 reported that they never did so. As a result, some hospital services may enter into catering contracts without fully considering infection control requirements.
- 5.80 Under the Food Hygiene Regulations 1974, local authorities must register all premises involved in the manufacture, preparation, packaging, and storage of food for sale. However, specified premises – including hospitals – are defined as “partially exempted premises” and do not have to be registered.
- 5.81 Nevertheless, some local authorities inspect hospital kitchens because they judge them to be high-risk. The potential impact of a food-borne infection on vulnerable hospital patients is high, so there is a good case for requiring hospital kitchens to meet the same hygiene standards expected of other catering premises.

### *Survey Responses on Consultation About Laundry Arrangements*

- 5.82 Soiled or torn linen can expose patients to the risk of infection. Laundry facilities therefore need to be run by appropriately trained staff, equipment needs to be properly maintained, and laundry areas must be kept clean and well ventilated, with a clear separation between dirty and clean linen. Torn linen should be repaired or discarded if it no longer meets requirements.
- 5.83 We asked whether the infection control team was involved when the laundry contract was reviewed. Seven respondents (just under half of those with contracts)<sup>125</sup> said they always involved their infection control team. Four reported that they never did so. As in the case of catering contracts, this lack of involvement may result in contracts being entered and renewed without proper consideration of infection control requirements.
- 5.84 Accreditation (see paragraph 2.21 on page 44) can prompt improvements in activities that have an impact on the safety of the hospital environment. To achieve accreditation, one hospital service we visited was required to undergo an audit of its laundry service. The infection control team

124 F3.1: Q10, a – two hospital services did not contract out their catering service.

125 F3.1: Q10, b – six hospital services did not contract out their laundry service.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

had had long-standing concerns about the quality and safety of the service, which was provided by another DHB. The audit showed that the service did not comply with the Australian Standard on Laundry Practice.<sup>126</sup> In its report, the accreditation agency brought the non-compliance to the DHB's attention and, as a result, the infection control team's concerns were addressed.

### *Survey Responses on Consultation About Waste Management Contracts*

- 5.85** All hospital services had contracted out their waste management. Twelve said that their infection control team was always involved in reviewing the contract.<sup>127</sup> Three reported that they never involved their team in such reviews.

### *Survey Responses on Consultation About Cleaning Arrangements*

- 5.86** Cleaning standards for public hospitals have been established in Australia by the Victorian Government<sup>128</sup> and in the United Kingdom by the Infection Control Nurses Association.<sup>129</sup> No cleaning standards have been established for New Zealand public hospitals.

- 5.87** The routine work of infection control practitioners can enable them to gain the skills and knowledge they need to provide reliable advice on cleaning and hygiene standards. For example, 18 infection control teams said they had undertaken audits of cleaning standards, which they generally do as part of broader audits of hospital hygiene.<sup>130</sup> A number of teams said they reported on matters such as the need for changes in the cleaning schedule or the need for more training of cleaning staff.

... Infection control had considerable input into the last round of cleaning contract negotiations ...

<sup>126</sup> AS 4146:1994 *Laundry Practice* published by Standards Australia – this standard is cited in the New Zealand Infection Control Standard.

<sup>127</sup> F3.1: Q10, c.

<sup>128</sup> At [www.vic.gov.au](http://www.vic.gov.au).

<sup>129</sup> *Standards for Environmental Cleanliness in Hospitals* ( see [www.cleanhospitals.com](http://www.cleanhospitals.com)).

<sup>130</sup> F3.3: Q26b, A, b.

## RELATIONSHIPS BETWEEN INFECTION CONTROL AND THE REST OF THE HOSPITAL SERVICE

- 5.88 One respondent outlined the following areas for improvement that arose from a review of the cleaning contract by an infection control practitioner:
- the need for extra cleaning duties in specified clinical areas; and
  - improved cleaning specifications for certain areas and equipment – the practitioner helped devise the specifications, recommended what areas needed additional cleaning, how often, and the additional time required.
- 5.89 Of the 19 hospital services that had contracted out cleaning services, only nine always consulted the infection control team when reviewing the cleaning contract.<sup>131</sup> By excluding infection control staff, there is a risk that infection control matters will not be sufficiently considered in the contracting process.

### Conclusions

- 5.90 Through their contacts and hospital-wide experience, infection control practitioners often know a lot about how the hospital works. Involving them in changes to the hospital environment helps to ensure that the practical consequences are fully considered. We noted that where the practitioners were involved in reviews of equipment, buildings, catering, laundry, and cleaning, they provided useful advice that could improve the quality of decisions.
- 5.91 We were disappointed at the limited consultation with infection control practitioners on such matters. We regard this as a missed opportunity to minimise infection control risks.

#### **Recommendation 27**

The infection control team should be consulted when changes to the hospital environment (including contracting of services) are proposed.

<sup>131</sup> F3.1: Q10, d.



## Part Six

# Setting Infection Control Policies, Educating People to Follow the Policies, and Making Sure They Do





## Introduction

6.1 All people working in hospital services need to be clear about what they need to do (and not do) in order to meet infection control requirements. Clear guidance is achieved by:

- establishing and documenting infection control policies and procedures;
- educating people working in hospital services about the policies and procedures and how to apply them; and
- auditing clinical and other hospital practices to ensure that staff are following the policies and procedures as they undertake their day-to-day tasks.

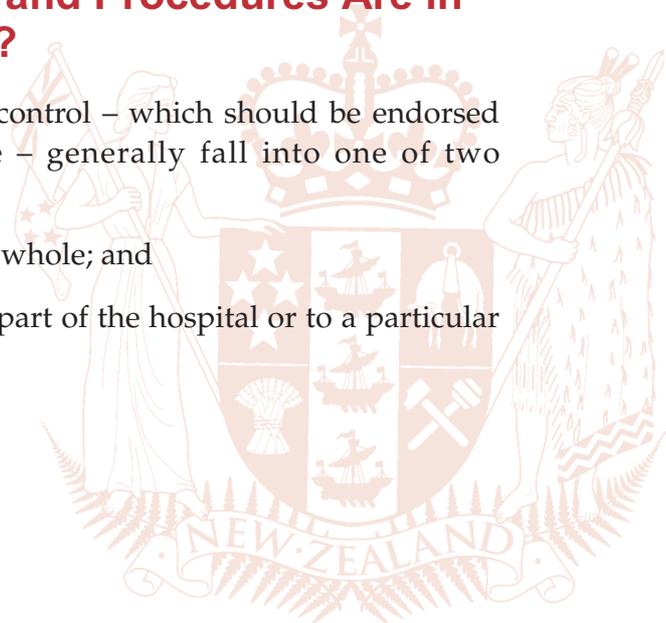
6.2 In this part we examine:

- what infection control policies and procedures are in place and what they cover;
- training and education of hospital staff in infection control;
- auditing the application of infection control policies and procedures;
- hygiene audits;
- monitoring of compliance with antibiotic policies; and
- involvement of infection control staff in clinical audits.

## What Infection Control Policies and Procedures Are in Place and What Do They Cover?

6.3 Policies and procedures for infection control – which should be endorsed by the infection control committee – generally fall into one of two categories:

- those that apply to the hospital as a whole; and
- those that are relevant to a specific part of the hospital or to a particular activity.



## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

### *Survey Responses on Manual of Policies and Procedures*

6.4 The policies and procedures should be readily available to the infection control team – for example, in a manual that is regularly reviewed and updated.

6.5 We asked whether hospital services had an infection control manual containing generic (i.e. applying throughout the hospital service) infection control policies and procedures, and how often these were updated.

6.6 All hospital services reported that they had a manual containing generic infection control policies and procedures that was available to the infection control team.<sup>132</sup> Guidance being used in one hospital service, for the control of specific infectious organisms, illustrated particularly well the important components of a comprehensive statement of infection control policy:

**... Policies and procedures are clear and available on the hospital intranet site ...**

- a clear purpose and scope;
- clearly assigned roles and responsibilities within the hospital service – including responsibilities for adequate resourcing, communications, record-keeping, and clinical practice;
- measures to prevent the transmission of infectious organisms – including education, screening, procedures for the management of colonised or infected staff, and isolation of infected patients; and
- the maintenance of patient records for infection tracing and identification, and the provision of information to the patient.

6.7 Almost all infection control teams updated their manual at least every three years.<sup>133</sup> One hospital service that we visited highlighted the value of its document control system in providing:

- a clear record of the status of policies, procedures, and guidelines, showing when they were issued and due for review; and
- easy reference for staff.

<sup>132</sup> F3.3: Q9a.

<sup>133</sup> F3.3: Q9c.

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

Figure 12  
Does an Infection Control Procedure Exist?<sup>134</sup>

	Yes	No
Hand hygiene	21	0
Standard Precautions	21	0
Transmission-based Precautions	21	0
Management of patients with known or suspected TB	21	0
Prevention and follow-up of needle-stick injury/blood/body-fluid exposure	21	0
Re-use of single-use items	21	0
Waste management	21	0
Pre-employment screening	20	1
Insertion and management of intravascular device	19	2
Screening of patients	18	3
Investigation of outbreaks	18	3
Disinfectant and antiseptic policy	18	3
Purchasing of equipment	18	3
Prevention and management of infection in hospital staff	17	4
Laundry practice	17	4
Management of immuno-compromised patients	15	6
Management of non-immune and colonised staff	15	6
Management of urinary catheter systems	15	6
Care of wounds and management of surgical drains	15	6
Staff vaccination policy	14	7
Antimicrobial <sup>135</sup> usage	14	7
Pest control	12	9
Environmental standards for patient care areas	12	9
Aseptic techniques <sup>136</sup>	10	11
Bed management	8	13

134 F3.3: Q11, A – we selected this list of items for which a hospital service might be expected to have policies and procedures as a part of the planning and pilot phase of our survey.

135 This is the term we used in our survey. We have used the more familiar term “antibiotic” throughout our report.

136 Aseptic techniques are procedures used to minimise the transfer of infection.

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

### Survey Responses on What Policies and Procedures Are in Place

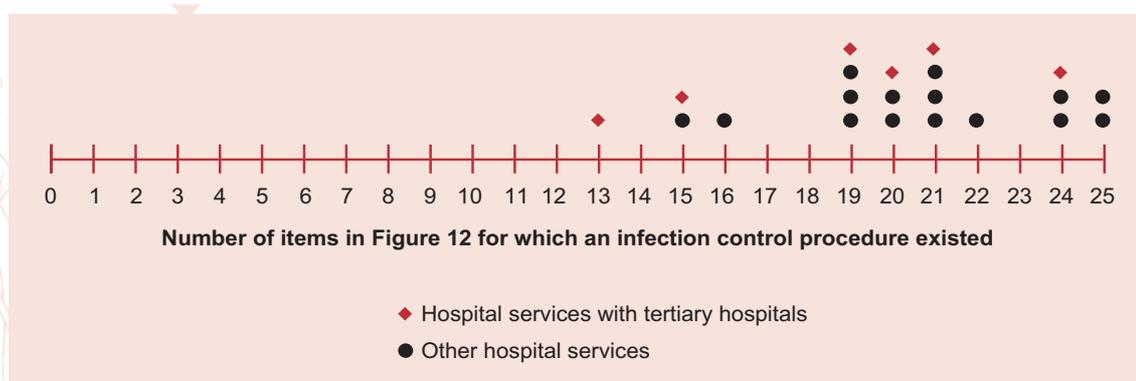
6.8 Hospital services had infection control policies and procedures for most of the activities specified in the Standard.<sup>137</sup> For example, Figure 12 (on the previous page) shows that all hospital services had procedures covering hand hygiene; Standard Precautions; Transmission-based Precautions<sup>138</sup>; and re-use of single-use items.

... Once again the actions taken following the finding of MRSA within the surgical area re-emphasised the importance of hand hygiene, including the use of alcohol-based hand rubs and adherence to Standard Precautions at all times ...

In addition, they all had procedures for the management of patients with known or suspected tuberculosis (TB); prevention and follow-up of needle-stick injury/blood/body-fluid exposure; and waste management.

6.9 The extent to which each hospital service had procedures covering the 25 items in Figure 12 varied. Figure 13 below shows that one hospital service had procedures for only 13 of the 25 items – of particular concern since this was a DHB with tertiary services, where the risks are particularly high and infection control procedures are especially important. Seventeen DHBs had procedures for 19 or more of the 25 items – and two of the smaller DHBs had procedures for all 25 items.

**Figure 13**  
*Extent of Infection Control Procedures, by Hospital Service*



<sup>137</sup> NZS 8142:2000, paragraph 4.5, page 15 – *Policies and procedures shall include but are not limited to: hand hygiene; Standard Precautions; transmission-based precautions; prevention and management of infection in service providers; antimicrobial usage; outbreak management; cleaning, disinfection, sterilisation; and single-use items.* (Variously covered by F3.3: Q11, A).

<sup>138</sup> Standard Precautions are taken in relation to all patients and include hand washing, glove use, and use of barrier protection. Transmission-based Precautions are used alongside Standard Precautions to reduce the risk of airborne droplet and contact transmission.

- 6.10 Innovative policies, procedures, practices, and guidance for staff can have a big impact on the detection, reporting, and management of infections – with benefits for patient and staff safety. One hospital service had introduced a blood/body-fluid exposure kit containing:
- information about first-aid procedures;
  - instruction sheets and a checklist for staff;
  - guidelines for obtaining consent to take a sample;
  - patient information;
  - specimen tubes for blood or body-fluid samples; and
  - laboratory and incident forms.
- 6.11 After introducing the kit, the number of *reported* instances of exposure increased markedly over the number reported in the previous year, giving a more comprehensive picture of risks to staff. Such initiatives can also support more detailed reporting of the causes of infection – information that can then be used to improve staff education programmes in the areas of highest risk and, more generally, to improve infection control practice.
- 6.12 Moving patients increases the risk of spreading infection. However, some transfers of hospital patients between cubicles in the same ward or to different wards can be inevitable when there is high demand for beds. Bed management policies should set out procedures for dealing with large numbers of patients and limited bed capacity – in the interests of minimising movements of patients and thereby reducing the risk of spreading infection. However, only eight hospital services said they had a bed management policy.<sup>139</sup>
- 6.13 In addition, some hospital services had no infection control policies governing important areas of clinical practice such as the application of aseptic techniques, the management of patients with urinary catheters, care of wounds, and/or management of surgical drains.<sup>140</sup>

139 F3.3: Q11, A – d.

140 F3.3: Q11, A – p, r, s (respectively) – see Figure 12 on page 131.

### *Survey Responses on Procedures for Re-use of Single-use Items*

- 6.14 For reasons that include patient safety, many hospital equipment items are used only once.<sup>141</sup> When items intended for a single use are processed for re-use, the processing is often technically complex and, if not strictly controlled, can pose risks for patient safety.
- 6.15 Since 2001, the United States Food and Drug Administration has required single-use items to be processed for re-use to the same quality assurance and safety criteria used by the original manufacturer – a requirement that has virtually stopped the re-use of such items in US hospitals.<sup>142</sup> Financial implications arise from adopting this approach.
- 6.16 In New Zealand, the Ministry has been working mainly with relevant Australian bodies on the re-use of single-use items. Developments have included:
- In December 1994, Medsafe – the New Zealand Medicines and Medical Devices Safety Authority, a business unit within the Ministry – circulated an article from the publication *Prescriber Update* to every medical practitioner in the country. The article stated that users should always follow the manufacturer’s recommendation on re-use unless there was documented evidence to support a deviation. There should be written policy or guidelines for such deviations and documentation to cover all aspects of safety and performance of a device.
  - In 1995, the Australian National Health and Medical Research Council Expert Panel produced a report on re-use of medical devices labelled as single-use, containing 14 recommendations. The New Zealand Ministry of Health was represented on a working party established in 1997 to advise on the implementation of the recommendations. In 1998, the Ministry reminded hospital and health care services of the December 1994 publication and provided a summary of progress on the working party’s project.
- 6.17 ★ The Ministry has continued to monitor international developments. We understand that Medsafe has plans to update hospital services on these developments in the near future, and to make recommendations on any appropriate action.

<sup>141</sup> The costs of safely processing for re-use to the manufacturer’s specifications may also be a consideration.

<sup>142</sup> *Requiem for Re-use of Single-use Devices in US Hospitals*; published in *Infection Control and Hospital Epidemiology* (an official journal of the Society for Healthcare Epidemiology of America); Vol. 22(99), September 2001.

- 6.18 In the meantime, the country's hospital services follow the Australian Standard AS 4187 (now a joint standard<sup>143</sup>) on cleaning, disinfecting, and sterilising re-usable medical and surgical equipment (including single-use items that the hospital service has decided to re-use). The standard recommends that single-use items be discarded appropriately after use *according to local regulations*.
- 6.19 The Infection Control Standard (the Standard) requires hospitals to have a policy on single-use items, and notes that processing these items for re-use may present risks to patients.<sup>144</sup> Any re-use of items intended for single-use requires carefully controlled processing. Arrangements for re-use should include:
- clear designation of items intended for a single use;
  - procedures for approval for such items to be processed for re-use;
  - staff who have the skills and expertise to set appropriate processing standards for re-use and to check individual pieces of equipment for compliance with the standards; and
  - periodic audits to ensure that any processing for re-use is carried out consistent with the manufacturer's specifications, and in a way that manages any associated infection risks and preserves the integrity of the equipment.
- 6.20 All hospital services had procedures on the re-use of single-use items.<sup>145</sup> For example, in one hospital service, designated single-use items could be re-used only with the approval of a committee convened for that purpose. For each item, the committee also assigned a date by which it must review and confirm its approval before the item could continue to be re-used. In this way, the committee performed an important quality control function through its oversight of an area of hospital practice that is recognised as presenting a particular set of risks for patient safety.

### Conclusions

- 6.21 Infection control teams and other hospital staff had ready access to documented, up-to-date infection control policies, procedures, and practices – both for day-to-day reference and guidance, and to use as a benchmark for auditing against good practice.

143 AS/NZS 4187:2003 – *Cleaning, disinfecting and sterilizing reusable medical and surgical instruments and equipment, and maintenance of associated environments in health care facilities*.

144 NZS 8142:2000, page 15.

145 F3.3: Q11, A – t.

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

- 6.22 Most hospital services had in place procedures for those activities specified in the Standard. However, when assessed against a wider range of aspects of clinical or other hospital practice for which hospitals might be expected to have procedures, coverage was more variable. Some hospital services had comprehensive procedures, while others had no infection control procedures for some important aspects of clinical or other hospital practice.
- 6.23 All hospital services had procedures to manage the risks associated with the re-use of items intended for single-use. However, the issues relating to such re-use are complex. In our view, national consistency in approach and practice would be prudent, and would enable proper consideration of the financial implications of the more cautious practices being adopted or under consideration overseas.

### Recommendation 28

Hospital services should review the scope of their infection control policies, procedures, and practices to ensure that they cover all relevant activities.

### Recommendation 29

The Ministry should consider establishing a working party to review information on overseas practices and developments on the re-use of items intended for a single use, with a view to providing timely guidance to DHBs.

## Policies on the Use of Antibiotics

- 6.24 Antibiotics are used to treat bacterial infections (known as therapeutic use of antibiotics). They are also used for prophylactic treatment – to help prevent infections occurring in patients undergoing certain procedures, such as cardiac or orthopaedic surgery.
- 6.25 The widespread use of antibiotics worldwide has led to the emergence of highly resistant strains of bacteria. The risks posed by such bacteria are greatest where:
- antibiotic use is high;
  - sick patients are in close contact; and
  - conditions in the hospital ward or department allow organisms to spread.

- 6.26 In August 2001, the Ministry reviewed antibiotic usage to monitor the progress DHBs were making towards implementing the Standard. The review found most DHBs had policies (either final or in draft) for the prudent prescribing of antibiotics for treating infections. Fewer had policies for the use of antibiotics to prevent infection, or processes to evaluate compliance with their policies. The Ministry recommended that DHBs achieve compliance by June 2002.

### *Survey Responses on Antibiotic Policies*

- 6.27 We asked each hospital service:
- whether it had policies or guidelines for the use of antibiotics; and
  - who controlled antibiotic policies or guidelines.
- 6.28 Most hospital services had policies or guidelines for the therapeutic and prophylactic use of antibiotics.<sup>146</sup>
- 6.29 Policies or guidelines were most commonly controlled by a Medicines Review Committee or equivalent, in conjunction with clinicians.<sup>147</sup> The committee usually included pharmacists and medical microbiologists.
- 6.30 Doctors and midwives (in treating pregnant women) prescribe a range of antibiotics to control a variety of organisms, and need easy access to information about the resistance of particular organisms to specific antibiotics:
- One hospital laboratory had designed a reference sheet listing organisms and the extent to which each was resistant to particular antibiotics. As well as providing a helpful aid to doctors, the reference sheet established a useful benchmark for auditing compliance.
  - An infection control team had designed laminated antibiotics tags to be attached to doctors' name tags. This was an innovative way to remind medical staff about the correct antibiotics to be prescribed.

<sup>146</sup> F3.1: Q11.

<sup>147</sup> F3.1: Q12.

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

### *Conclusions*

- 6.31 Most hospital services had policies or guidelines for the appropriate use of antibiotics. Medicines Review Committees (which most commonly control the policies governing the prescribing of antibiotics) had a broad membership, helping to ensure that decisions about antibiotics recommended for use took account of current patterns of bacterial resistance within the hospital.

### **Keeping Infection Control Policies and Procedures Up To Date**

- 6.32 Survey responses and discussions with infection control practitioners suggested that infection control teams are spending a substantial amount of time drawing up and reviewing infection control policies (14% of infection control practitioner time on average)<sup>148</sup>. As clinical practices change, policies need to be reviewed. And, as hospitals prepare for certification, this aspect of infection control practitioners' work is likely to grow.
- 6.33 Infection control policies and procedures need to reflect the particular hospital environment where they will be applied. However, some apply equally to any hospital environment. Smaller infection control services are likely to find it difficult to draw up and maintain a full range of infection control policies. Although infection control practitioners sometimes get together at events such as conferences to share good practice, we found little evidence that infection control services were seeking to share expertise and experience, collaborate actively, and/or exchange information on common issues.

### *Conclusions*

- 6.34 Drawing up infection control policies and keeping them up to date is time-consuming and the work involved is likely to increase as hospital services prepare for certification. Many aspects of policies are applicable to all hospital services, and infection control services could benefit from greater sharing of policies, procedures, and best practice throughout the public health sector.

148 F3.2: Q2, A–f.

### Recommendation 30

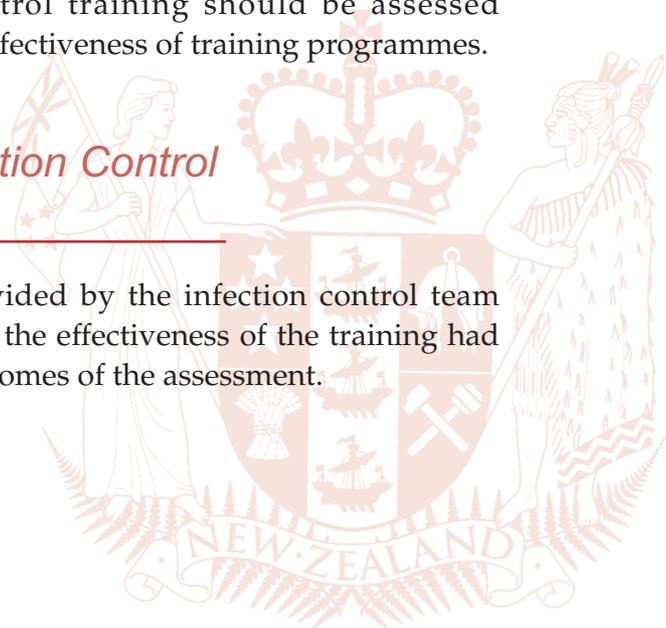
DHBs should explore using the Health Intranet maintained by the Ministry to facilitate communication and collaboration, and to share educational material and information on policies, procedures, best practice, and local initiatives.

## Training and Education for Hospital Staff in Infection Control

- 6.35 Maintaining personal hygiene and following good work practices are essential in preventing hospital-acquired infection. Hospital staff should receive education and training during induction. Thereafter, they should undergo refresher training at regular intervals to remind them of good practice.
- 6.36 The training should be tailored to reflect the particular services provided in the hospital and the wide range of educational abilities and work responsibilities of particular staff. As a minimum, training should include:
- instruction on hand hygiene, aseptic practices, and Standard Precautions;
  - strategies and good practice for isolating infectious or at-risk patients; and
  - how to prevent exposure to blood and body-fluids.
- 6.37 The effectiveness of infection control training should be assessed periodically, to review the focus and effectiveness of training programmes.

### *Survey Responses on Infection Control Training of Hospital Staff*

- 6.38 We asked, in regard to training provided by the infection control team to other health care workers, whether the effectiveness of the training had been assessed, and what were the outcomes of the assessment.



## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

6.39 Nurses and midwives have high levels of contact with patients, making it vital that they are aware of the need to follow scrupulous hygiene practices, and the health risks associated with lack of hygiene. All hospital services reported that their infection control teams provided infection control training to newly appointed nurses and/or midwives.<sup>149</sup>

6.40 In 18 hospital services, new resident medical staff (generally house surgeons or registrars) also received training in infection control.<sup>150</sup> However, only one-third provided such training for newly employed senior doctors<sup>151</sup>, creating the risk that their practices may be inconsistent with the organisation's policies.

6.41 Eighteen hospital services provided annual updates on infection control for nurses and/or midwives.<sup>152</sup> However, only two and four respectively provided such training for senior doctors and resident medical staff.<sup>153</sup>

6.42 Cleaners and other staff providing support services in the hospital come into contact with facilities and equipment. They need to know and follow basic infection control practices, otherwise they could create risks for their own safety and the safety of others. However, our survey indicated that fewer than half of the hospital workers in the categories we specified (cleaners, hospital orderlies, and food-handling staff) received any training in infection control.<sup>154</sup>

6.43 Providing simple written explanations and instructions on key infection control policies in the hospital can be a useful way to convey important messages to staff. A handbook published by one infection control team outlined sensible precautions and good practice including:

- the benefits of vaccination for staff safety;
- the importance of thorough hand hygiene;
- advice on how to avoid acquiring infections from patients, and the precautions to be followed when caring for patients in isolation;
- practices to prevent a needle-stick injury and what to do if one happens;

... The [infection control] team has ongoing issues around getting staff to training in the numbers they would like ...

149 F3.1: Q2, A – d.

150 F3.1: Q2, A – b.

151 F3.1: Q2, A – a.

152 F3.1: Q2, B – d.

153 F3.1: Q2, B – a, b.

154 F3.1: Q2, A – h, i, j.

- work restrictions for staff with infectious conditions or skin problems; and
- information about the most common and hazardous organisms.

6.44 The handbook also told staff whom to contact for advice.

6.45 A few infection control teams published newsletters or contributed articles to a hospital newsletter. These publications can help to keep staff informed of infection control matters within the hospital service and maintain awareness of good practice.

6.46 One infection control team published a quarterly newsletter *Lurgy Literature*. The newsletter contained articles on infection control matters in different parts of the hospital. For example, the edition sent to us:

- listed members of the infection control committee;
- alerted staff to the hospital's updated Meningococcal Disease Contact Policy;
- informed staff about MRSA and measures to prevent its occurrence and contain its spread;
- invited staff to comment on a draft occupational health policy;
- contained guidance for the prevention of surgical site infection; and
- provided advice on when latex or vinyl gloves should be used.

6.47 Targeted education programmes can be effective in reducing the incidence of hospital-acquired infection. A refresher programme in an overseas hospital, showing staff how to insert catheter tubes into veins, resulted in a 64% reduction in infection of catheter sites and a 67% reduction in the number of associated bloodstream infections.<sup>155</sup>

6.48 Thirteen respondents had assessed the effectiveness of staff training in infection control.<sup>156</sup> All but one of the assessments covered staff awareness, understanding, and compliance with infection control procedures.<sup>157</sup> The assessments were particularly valuable because they<sup>158</sup>:

- identified instances of poor infection control practice;
- provided people working in the hospital with useful feedback on whether they were meeting standards of good practice; and
- formed the basis for any necessary follow-up action.

155 Eggimann P, Pittet D; *Overview of Catheter-related Infections with Specific Emphasis on Prevention-based Educational Programs*; *Clinical Microbiology and Infection*; Vol. 8, No. 5, May 2002.

156 F3.1: Q3a.

157 F3.1: Q3b.

158 F3.1: Q6 & Q7.

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

### Conclusions

- 6.49 Effective infection control practice cannot be achieved without the commitment of well-informed and trained staff. Training in good practice and familiarity with organisational policies and procedures helps to promote a culture of good infection control practice throughout the hospital.
- 6.50 All hospital services reported that their infection control teams provided infection control training to newly appointed nurses and/or midwives. Some staff groups (in particular, senior doctors and support services staff) were much less likely to receive infection control training, either on appointment or as refresher training – creating the potential for awareness and commitment to decline, and for standards of practice to slip.
- 6.51 Assessments of the effectiveness of training provided valuable information on the practice of infection control.

### **Recommendation 31**

Hospital services should:

- ensure that all hospital staff – including doctors and support services staff – receive training in infection control when they join the hospital; and
- provide refresher training to all relevant staff to maintain awareness and encourage compliance with standards.

### **Auditing the Application of Infection Control Policies and Procedures**

6.52 In Part Four, we noted the small amount of time that infection control staff in some hospital services spent on auditing compliance with infection control procedures (see paragraph 4.43 on page 89).

6.53 Audits are an important source of assurance about compliance with safe practice and should be viewed as a key component of a hospital's management of risk.

[Value of Audit]  
... on occasions to congratulate the ward/unit on excellent compliance with infection control policies/processes ...

In any organisation, auditing of policies and procedures serves two vital purposes:

- to monitor compliance; and
- to identify any difficulties in putting policies and procedures into practice, and any need to improve them.

### *Survey Responses on the Audit of Policies and Procedures for Infection Control*

- 6.54 We asked whether compliance with the infection control procedures for the items listed in Figure 12 (on page 131) had been audited in the previous 12 months.
- 6.55 Hospital services had undertaken only limited auditing of compliance<sup>159</sup>, even for procedures required by the Standard:
- Hand hygiene is widely recognised as essential for preventing infection, but only 13 hospital services had audited compliance with hand hygiene procedures.<sup>160</sup>
  - Only 10 had audited compliance with Standard Precautions.<sup>161</sup>
  - Only nine had audited re-use of single-use items.<sup>162</sup>
  - Only four had audited prevention and management of infection in hospital staff.<sup>163</sup>
- 6.56 We specifically examined the responses from the six hospital services with tertiary hospitals. We expected these hospital services to have a strong infection control audit programme in place, in view of the fact that they treat large numbers of the most sick and vulnerable patients who often undergo hospital treatment that is relatively complex and risky. However, in the previous 12 months, few procedures had been audited:
- one of the six hospital services had audited compliance with seven procedures;
  - two had audited compliance with six procedures; and
  - the other three had audited compliance with three or fewer procedures.

159 F3.3: Q11, C.

160 F3.3: Q11, C – a.

161 F3.3: Q11, C – b.

162 F3.3: Q11, C – t.

163 F3.3: Q11, C – l.

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

### Survey Responses on Audits of Hospital Hygiene

6.57 Audits of hospital hygiene can make a substantial contribution to infection control by ensuring that:

- staff follow good practice in their day-to-day work;
- equipment is clean, and disinfected or sterilised where necessary; and
- hospital facilities are maintained and cleaned to an appropriate standard.

6.58 We asked infection control teams:

- whether they had carried out an audit of hospital hygiene;
- what such audits covered;
- whether they produced reports of findings; and
- who received those reports and what changes resulted.

6.59 All infection control teams had carried out an audit of hospital hygiene.<sup>164</sup> The majority had covered most key areas.<sup>165</sup>

- Most had audited at least six of eight key areas.
- However, three teams had carried out audits in fewer than four of the eight key areas.
- All audits had been carried out within the previous two years.

6.60 Good standards of hygiene often involve having the personal discipline to undertake a simple, repetitive task – such as washing your hands – frequently and thoroughly. For people to maintain personal discipline, they need a good standard of facilities – such as clean washbasins in working order – that enable them to undertake the task efficiently as part of their normal routine. One audit by an infection control team found that more than half of hand-washing facilities had major faults:

- one in four basins was blocked;
- taps were faulty;

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<sup>164</sup> F3.3: Q26a.

<sup>165</sup> F3.3: Q26b – we identified eight key areas on which we expected audits of hospital hygiene to focus:

- collection and disposal of waste;
- building cleanliness;
- procedures for cleaning, disinfection and sterilisation;
- food hygiene;
- personal protective equipment;
- hand hygiene;
- hand basins; and
- cleanliness of ward facilities (toilets, bathrooms, kitchens).

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

- one in 10 basins had no soap;
- rubbish bins to collect paper towels were not available, were overflowing, or had faulty lids; and
- there were no paper towels for drying hands.

6.61 The team also found minor faults in more than 80% of the hospital's hand-washing facilities.

6.62 The findings led to an investigation into hand hygiene products that might be as effective as normal washing with soap and water, as well as being acceptable to staff. Other improvements arising from hygiene audits that were reported to us included<sup>166</sup>:

[Hand-washing]  
... **generally good compliance from nurses – less from medical staff ...**

- revised ward-cleaning schedules;
- a decision to involve infection control staff in cleaning contract negotiations;
- the use of a new, more effective brand of liquid soap;
- further education in waste management;
- re-siting of disinfection facilities away from clinical areas; and
- changes to the way in which hospital linen was handled.

6.63 A hygiene audit in one of the hospitals we visited illustrated the benefits of reinforcing good practice through audits. The audit had reviewed daily practice against the hospital's directive that all staff must wash their hands after physical contact with patients. During the ward rounds conducted by five consultants, it was noted that not all washed their hands after physical contact. This was particularly worrying as four patients examined during the rounds were potentially infectious.

6.64 The results of the audit were brought to the attention of the consultants, reminding each of the importance of careful hand hygiene to avoid the risk of transmitting infection from one patient to another.

166 F3.3: Q30.

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

- 6.65 We commend this audit as a good example of how an infection control team was supported in reviewing the practices of senior staff. This type of audit can only be done effectively in an environment committed to, and supportive of, a thorough hospital-wide approach to the prevention of hospital-acquired infection.
- 6.66 Promotional activities can foster good infection control practice, reinforcing lessons from periodic audits. For example, one infection control team had organised a “Hand Washing Week” when staff were encouraged to participate in novel activities illustrating messages about hand hygiene. The campaign was well received and seen as successful in improving staff awareness.
- 6.67 All but two infection control teams produced reports of the findings from their hygiene audits.<sup>167</sup> The reports went to the ward that had been audited<sup>168</sup> but not all teams circulated them more widely – for example, only 12 gave the reports to members of the infection control committee.<sup>169</sup>

### *Conclusions*

- 6.68 The amount of auditing being undertaken for compliance with infection control procedures is too low. With so little time assigned to audits, it is difficult to be sure that policies and procedures are being followed – representing a substantial gap in quality assurance.
- 6.69 Hospitals were commonly carrying out audits of hospital hygiene, but some covered only a few areas of the hospital, limiting the assurance available to hospital managers about the safety of the hospital environment.
- 6.70 Audits of hospital hygiene can identify the need for substantial improvements in infection control in a range of hospital practices, procedures, and facilities. Education and promotional activities can reinforce, and make staff aware of, the important messages emerging from such audits.
- 6.71 The findings from such audits can have wider application than for the ward or unit that was audited, but the reports of audits were not always distributed widely. As a result, hospital managers may not be aware of all the lessons that the audits identified.

<sup>167</sup> F3.3: Q28.

<sup>168</sup> F3.3: Q29, A.

<sup>169</sup> F3.3: Q29, D.

## Recommendation 32

Hospital services should treat auditing compliance with infection control policies and procedures as a core quality assurance activity, and ensure that their infection control teams are adequately resourced to spend the necessary time on this work.

## Monitoring of Compliance with Antibiotic Policies

- 6.72 Gaps in the co-ordination of infection control activities and pharmaceutical practices create the risk that hospitals will not make the necessary associations between antibiotic resistance and prescribing patterns. We asked whether the infection control team worked with the pharmacy to ensure compliance with antibiotic policies or guidelines.

### *Survey Responses on Compliance with Antibiotic Policies*

- 6.73 Only 10 hospital services had members of the infection control team working with their pharmacy on compliance with antibiotic policies and guidelines.<sup>170</sup> Figure 14 describes how one hospital we visited supported compliance through ongoing analysis and reporting of antibiotic usage and patterns of bacteria resistance.

### *Figure 14 Reporting Antibiotic Usage and Patterns of Bacteria Resistance*

One hospital pharmacy regularly surveyed the practices of hospital departments and discussed the issues with staff, including members of the infection control team. Using this information, the pharmacy reported antibiotic use every six months to the hospital's Medicines Review Committee. Patterns of bacteria resistance were reported annually. These sets of information were then used to assess and update the hospital's list of preferred antibiotics.

170 F3.1: Q13.

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

- 6.74 We asked whether the infection control team had any concerns about non-compliance with antibiotic policies or guidelines, and how any such concerns were being addressed. Seventeen infection control teams had concerns about non-compliance with antibiotic policy or guidelines.<sup>171</sup> Their concerns were being addressed in a range of ways, such as by bringing them to the attention of the relevant committee – the infection control committee or the drugs and therapeutics committee.<sup>172</sup>

### Conclusions

- 6.75 Ensuring compliance with antibiotic policies requires close collaboration between the infection control team and pharmacy staff. We were therefore concerned that in more than half the hospital services, the infection control team and the hospital pharmacy were not working together to ensure compliance with these policies.

#### Recommendation 33

Hospital services should consider the need to review how well the infection control team and the hospital pharmacy are working together to ensure compliance with antibiotic policies.

### Involvement of Infection Control Staff in Clinical Audits

- 6.76 Elsewhere in the report (see, for example, paragraphs 5.1-5.4 on page 101) we have emphasised:

- the hospital-wide role and presence of the infection control team;
- the broad knowledge and expertise that the team builds up as a result of its role and presence; and
- the value of using this knowledge and expertise in activities throughout the hospital where infection control is a relevant consideration.

- 6.77 Clinical audit<sup>173</sup> is a central feature of clinical quality assurance. Much of an infection control team's work is closely related to clinical audit. Clinical audits undertaken by other hospital staff may also help to identify infection control risks associated with hospital practices and the hospital environment.

<sup>171</sup> F3.1: Q14a.

<sup>172</sup> F3.1: Q14b.

<sup>173</sup> Clinical audit seeks to: improve the quality and outcome of patient care through structured peer review whereby clinicians examine their practices and results against agreed standards and modify their practice where indicated – definition taken from *Clinical Audit in the NHS*, UK National Health Service Executive, 1996.

- 6.78 The results of clinical audits should be made available to appropriate members of the infection control team or committee, so that any necessary improvements can be identified and action taken. In some cases it may be useful to involve infection control staff in the design of a clinical audit, ensuring that the audit addresses relevant infection control issues.

### *Survey Responses on Involvement in Clinical Audits*

- 6.79 We asked whether the infection control team contributed to the drawing up of standards in clinical services, and whether the team assisted in auditing compliance with those standards. We also asked about the focus of clinical audits in 2000-01, and how the results of the audits were used.
- 6.80 Nineteen infection control teams said that they contributed to the drawing up of standards in some other clinical services. Fourteen teams said that they assisted in auditing compliance with the standards.<sup>174</sup>
- 6.81 We identified seven clinical facilities and processes<sup>175</sup> for which we expected that the infection control team might be involved in clinical audits. Responses varied widely:
- all infection control teams were involved in audits of sharps' disposal<sup>176,177</sup>;
  - 16 were involved in audits of the use of intravenous devices<sup>178</sup>;
  - only nine were involved in audits of isolation units<sup>179</sup>; and
  - only five were involved in audits of wound care<sup>180</sup>.
- 6.82 One clinical audit illustrated the benefits of infection control staff being involved in an audit of the use of intravenous catheters. These medical devices can cause complications, including infection. In 2001, following earlier similar studies in 1994, 1997, and 1998, the infection control nurses collected data on 577 patients who had catheters inserted. The audit showed an infection rate of 6.5% – an increase from previous years when the rate had been as low as 1.1%. The audit report recommended that hospital staff:

174 F3.3: Q31.

175 The facilities and processes were: isolation units; use of intravenous devices; wound care; sharps' disposal; appropriateness of prophylactic prescribing of antibiotics; the pre-employment screening programme; and vaccines for influenza and pneumococcal prophylaxis.

176 "Sharps" refers to objects or devices with sharp edges or points capable of cutting or penetrating the skin and causing a needle-stick injury.

177 F3.3: Q32, d.

178 F3.3: Q32, b.

179 F3.3: Q32, a.

180 F3.3: Q32, c.

## SETTING INFECTION CONTROL POLICIES, EDUCATING PEOPLE TO FOLLOW THE POLICIES, AND MAKING SURE THEY DO

- monitor the length of time catheters were left in place;
- improve documentation in clinical notes about the insertion and management of catheters; and
- receive further education on aspects of care for intravenous catheters and administration of drugs.

6.83 All but one hospital service said that the infection control results of clinical audits were reported to a range of appropriate staff.<sup>181</sup> Eighteen infection control teams had identified specific infection control training needs from the audits<sup>182</sup>, including:

- ongoing education in contact precautions and compliance with standard hygiene practices;
- dealing with multi-resistant organisms; and
- handling of sharps' containers.

### *Conclusions*

6.84 Most infection control teams were helping to draw up standards for clinical services, but fewer assisted in auditing compliance with those standards. Teams were involved in audits of some clinical facilities and processes but not others – for example, isolation units and wound care – potentially weakening their focus on infection control risks.

6.85 Where infection control teams are involved in such audits, they can use the findings to help identify opportunities for improvements in infection control – such as the need for specific infection control training.

### **Recommendation 34**

Infection control teams should be involved in the design and conduct of clinical audits (as members of the audit team or indirectly through consultation or discussion) to ensure that such audits have regard to infection control risks associated with clinical facilities and processes, and to identify opportunities for improvement in infection control practices arising from audit findings.

<sup>181</sup> F3.3: Q34a & Q34b.

<sup>182</sup> F3.3: Q35.

## Part Seven

# Screening and Surveillance to Identify Hospital-acquired Infection





### Introduction

- 7.1 In this part we consider how hospital services identify infections by:
- “screening” – which involves taking swabs or blood samples, and undertaking tests to determine whether a person is colonised or infected; and
  - “surveillance” – which involves the collection and interpretation of data on infections, and reporting the results so that clinical staff and managers can take action, if appropriate.
- 7.2 Isolation facilities may be required for patients identified as having a transmissible infection or as being particularly vulnerable to infection. In this part, we also consider hospital services’ arrangements for isolating patients.

### Policies for Screening Patients and Staff to Identify Infection

- 7.3 When colonised or infected patients and/or staff are identified, action can be taken to help prevent the spread of infection and, if appropriate, begin any necessary treatment.
- 7.4 In August 2002, the Ministry published guidelines for the control of Methicillin-resistant *Staphylococcus aureus* (MRSA). These guidelines suggest when patients and staff should be screened, and explain what steps should be taken if a person is found to have acquired MRSA. The reasons why it is important to control MRSA are set out in Figure 15 (on the next page).
- 7.5 Screening for infectious organisms may involve testing staff and/or patients (with their consent):
- who have been admitted with infections resulting from other organisms;
  - after an outbreak, when the source is being investigated;
  - as a precautionary measure, when patients are transferred from one hospital to another; and
  - when staff have been exposed to an infected patient’s blood or other body-fluids.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

### *Figure 15* *Why Is It Important to Control Methicillin-resistant Staphylococcus aureus (MRSA)?*

MRSA is resistant to methicillin, oxacillin, and other antibiotics. It can spread readily in hospitals and other health care settings, primarily through direct person-to-person contact.

In some people, MRSA may become invasive and cause disease. Most vulnerable are those who are ill or injured.

It can cause a wide range of infections, including skin abscesses, post-operative wound infections, septicaemia, and pneumonia.

Because of their resistance to antibiotics, infections caused by MRSA have become increasingly difficult to control, requiring more complicated, toxic, and expensive treatment. MRSA can survive for long periods and, once established in a hospital or other health care setting, can be difficult to eradicate.

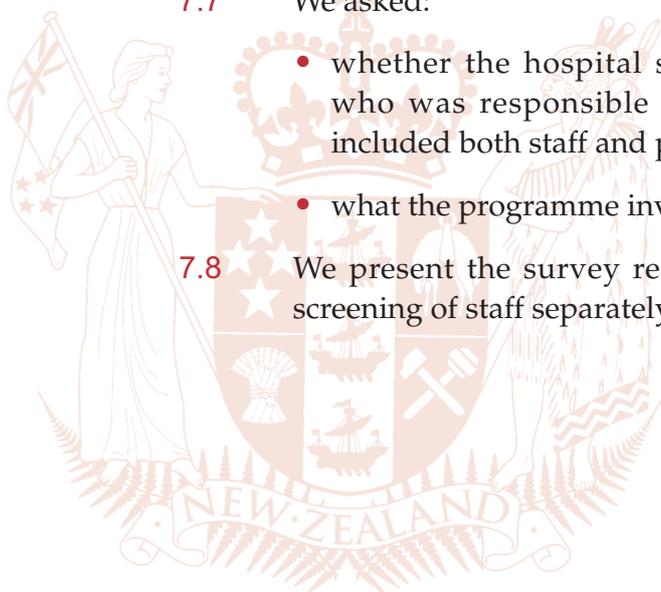
**7.6** Staff colonised with an infectious organism could potentially infect others, and should be screened before taking up their position. Summary information from screening can be used to:

- establish baseline test results against which to measure exposure in the future; and
- assess the need for and cost-effectiveness of a staff vaccination programme.

**7.7** We asked:

- whether the hospital service had a routine screening programme, who was responsible for screening, and whether the programme included both staff and patients; and
- what the programme involved.

**7.8** We present the survey responses for the screening of patients and the screening of staff separately in the following paragraphs.



### *Survey Responses on Screening Patients*

- 7.9 Twenty hospital services had a routine screening programme for certain groups of patients.<sup>183</sup>
- 7.10 Infectious organisms such as MRSA are known to be more prevalent in some health care settings than others. Directing preventive strategies (including screening) at patients admitted to hospital from high-risk settings can be cost-effective by reducing rates of hospital-acquired infection and use of antibiotics, and the length and cost of the time patients spend in hospital.
- 7.11 One hospital that we visited set out to establish whether there was a difference in MRSA colonisation rates between patients admitted to hospital from health care facilities and those admitted from the wider community (generally from their own home). Patients from selected health care facilities were screened, along with patients from the wider community.
- 7.12 The results of this screening identified key risk factors for MRSA colonisation – including patient characteristics, medical history, and residence. For example, patients admitted from aged-care facilities were shown to be relatively more likely to be colonised with MRSA. Such information on risk factors can be used to make the hospital's screening programme more effective by targeting higher-risk patients for screening on admission to the hospital.
- 7.13 Hospitals can usefully screen patients for a number of multi-drug-resistant organisms on admission. A tertiary hospital that we visited required certain patients to be screened for three organisms, as shown in Figure 16 (on the next page). Another hospital service was screening all patients aged over 65 who had been in hospital for a week or more, and was achieving earlier detection of multi-drug-resistant organisms as a result.

183 F3.3: Q42, c, d.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

*Figure 16  
Protocol for Screening Patients on Admission for  
Multi-drug-resistant Organisms*

Patient's Profile	ESBL <sup>184</sup>	MRSA	VRE <sup>185</sup>
From rest home/long-term care facility.		✓	
From another District Health Board hospital.		✓	
Previous admission to xxxx or yyyy hospital in the last two years.		✓	
Inpatient in zzzz hospital any time since January 2000.	✓	✓	
Admission to any overseas hospital in the last six months.	✓	✓	✓

✓ = screen on admission

### *Survey Responses on Screening Staff*

7.14 All hospital services carried out pre-employment screening for MRSA for clinical staff, and many also screened new staff for other infections such as Hepatitis B and TB.<sup>186</sup> Sixteen hospital services routinely screened staff to check whether any were colonised or infected.<sup>187</sup> This screening:

- confirms employees are free from being colonised or infected;
- indicates where staff (particularly those with blood-borne diseases) can safely work in a hospital, minimising risks to patients; and
- provides baseline information so that future exposures to infectious diseases can more easily be identified.

... These outbreaks were all caused by strains introduced into the hospital from overseas. Consequently, there is an active, ongoing staff MRSA screening programme and surveillance of patients being admitted from overseas hospitals ...

<sup>184</sup> Extended spectrum Beta lactamase.

<sup>185</sup> Vancomycin-resistant enterococci.

<sup>186</sup> F3.3: Q45, B, C.

<sup>187</sup> F3.3: Q42, a, b; Q45, A.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

- 7.15 Hospital services need to be especially alert to the risks associated with staff who have worked in other hospitals or institutions (including overseas) that have a high incidence of antibiotic-resistant infection. The Ministry's MRSA guidelines and the TB guidelines<sup>188</sup> contain advice on the circumstances in which screening is appropriate – including criteria for screening staff. For example, the guidelines recommend that one set of negative swabs be obtained before staff previously exposed to MRSA are cleared for general duties. Where a staff member was previously found to be colonised or infected with MRSA, three consecutive sets of negative swabs are required.
- 7.16 Tracing and screening is required in the event of an infection outbreak. For example, in one hospital that we visited TB had been unexpectedly found in a patient's wound. A total of 46 staff were identified as having possibly been exposed to the infection through:
- direct exposure to the patient (usually in dressing the wound);
  - care of the patient without direct exposure to the wound; and
  - indirect contact without physical or clinical involvement.
- 7.17 The importance of exhaustive tracing and screening was demonstrated when three of the screened staff showed signs of infection.
- 7.18 Our survey showed that responsibilities for screening staff and patients differed:
- In 10 hospital services, responsibility for screening patients rested with the infection control team.<sup>189</sup>
  - In the other hospital services, ward staff or the admitting doctor or nurse carried out patient screening.<sup>190</sup>
  - Staff were, in most cases, screened by occupational health or human resources personnel.<sup>191</sup>

188 *Guidelines for the Control of Methicillin-resistant Staphylococcus aureus (MRSA) in New Zealand*, Ministry of Health, August 2002; *Guidelines for Tuberculosis Control in New Zealand*, Department of Health, 1992.

189 F3.3: Q43, b.

190 F3.3: Q43, b; Q44.

191 F3.3: Q43, a, Q44.



## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

### Conclusions

- 7.19 Screening patients and staff plays an important part in preventing and controlling infectious diseases in a hospital. Most hospital services undertake targeted screening of patients and screening of staff. Those that do not, run a relatively higher risk of infections entering their hospital.
- 7.20 Exhaustive tracing and subsequent screening of staff and patients are essential responses after an outbreak of a hospital-acquired infection, in order to contain the further spread of the infection.

### What Is Surveillance?

- 7.21 The Standard defines surveillance as:

*... the regular collection, collation and analysis of information on infection events and rates, either continuously or at regular intervals, and the timely dissemination and feedback to those who need to know.<sup>192</sup>*

- 7.22 Surveillance is designed to:

- monitor patterns of infectious disease (including their causes), enabling preventive and control measures to be put in place;
- prevent outbreaks or detect them early in order to initiate timely action;
- identify groups of patients at risk of disease; and
- provide information for planning of infection control services and allocation of resources.

- 7.23 Research<sup>193</sup> has shown that surveillance can substantially reduce levels of hospital-acquired infection. In the following paragraphs we examine:

- what surveillance hospital services are undertaking for hospital-acquired infection;
- what access infection control teams have to surveillance data;
- reporting of surveillance results; and
- the surveillance of patients after discharge from hospital.

<sup>192</sup> Appendix A of NZS 8142:2000 *Infection Control*.

<sup>193</sup> For example: Haley et al *The efficacy of infection surveillance and control programs in preventing nosocomial infections in US hospitals*; *American Journal of Epidemiology* 1985; Vol. 121: pages 182-205. (A study of 338 hospitals, which found that hospitals with active surveillance and control programmes reduced the incidence of nosocomial infection by 32% over five years; those without had an increase of 18%). Cruse P *Surgical wound sepsis*; *Canadian Medical Association Journal* 1970; Vol. 102: pages 251-258. Chelgren G, Laforce FM *Limited, periodic surveillance proves practical and effective Hospitals* 1978; Vol. 52: pages 151-154.

### What Surveillance Is Undertaken for Hospital-acquired Infection?

- 7.24 We expected all infection control teams to be carrying out surveillance activities as part of their infection control programmes. Surveillance should:
- use common definitions that make it possible to collate surveillance data from hospitals and enable valid comparisons to be made;
  - focus on a range of factors including organisms, cases, wards or units, and infection sites (e.g. surgical wound infection, bloodstream infection, etc.);
  - draw on all data sources likely to contain information about infections, their causes and relevant circumstances; and
  - produce results that are shared with appropriate clinical staff to support discussion of the improvements required in clinical and other hospital practice.

### *Survey Responses on Common Surveillance Data Definitions*

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- 7.25 Collaboration within the hospital on the collection and analysis of infection control data can generate useful surveillance results. To do this properly, it is essential that staff agree and clearly understand common data definitions.
- 7.26 In one hospital that we visited, the infection control nurse reviewed all positive blood cultures for evidence of bloodstream infection. The clinical microbiologist considered the results of these reviews each month. Total bloodstream infections over quarterly periods were converted into annual rates for 1000 inpatient admissions. The analysis revealed the frequency of different infection sites (such as surgical wounds and sites of intravenous catheters)<sup>194</sup>, the organisms causing such episodes, and the patient groups most affected. Critical to the quality and reliability of this analysis was the use of a large sample of consistent data taken from throughout the hospital.

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<sup>194</sup> A catheter may, for example, be inserted into the skin so that a tube can be attached leading to a bag of intravenous fluid – the place where the catheter is inserted is referred to as the “site”.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

**7.27** It is important to have agreed definitions for surveillance data, so that the data collected from different sources and by different people can be readily interpreted and compared. Our survey found that hospital services were using a variety of national and international definitions<sup>195</sup>, with some using more than one set of definitions. This makes it impossible to interpret and compare data within or between DHBs or hospital services.

### *Survey Responses on the Focus of Surveillance*

**7.28** All infection control teams reported that they were carrying out some form of surveillance.<sup>196</sup> Surveillance should look at a range of events. The Standard provides guidance on the possible types of surveillance activities, and identifies the following events that are typically monitored:

- surgical site infections;
- bloodstream infections;
- pneumonias;
- device-related infections; and
- infections resulting from multi-drug-resistant organisms.

**7.29** The focus of surveillance will differ according to the size of the health facility. The Standard specifies types of events that all hospital facilities should target, and suggests that post-discharge surveillance should be undertaken for some specific events such as surgical site infections. Larger facilities would generally focus on specific high-risk areas, while smaller facilities would look at all events throughout the organisation.

**7.30** We asked hospital services whether they had carried out surveillance using any of the following four methods during the 12 months to June 2001:

1. Continuous alert organism surveillance – this involves reviewing the results of laboratory tests for the presence of significant organisms<sup>197</sup> as an indicator of the status of infection in the hospital.

<sup>195</sup> F3.3: Q13a & Q13b.

<sup>196</sup> F3.3: Q12.

<sup>197</sup> "Significant organisms" are those organisms that the hospital's experienced clinicians and laboratory personnel consider necessary to monitor.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

2. Continuous alert condition surveillance – the same broad approach but focused on those groups of patients most likely to acquire an infection or who are particularly vulnerable should they acquire an infection. This method requires close liaison between the infection control team and ward staff, and relies on ward staff being able to identify those patients who should be monitored, and to recognise an infection from the patient's condition.
3. Targeted surveillance – this is similar to the first two methods, but is undertaken periodically rather than continuously. It involves surveillance of patients according to certain characteristics – within a particular case mix, in a specific ward or unit, or by site of infection.
4. Selective laboratory-based ward liaison surveillance – using this method, laboratory and ward staff review selected surveillance data. This method can reveal an increase in the incidence of infection in a health care setting before it becomes a problem.

**7.31** During the 12 months to June 2001, 19 infection control teams had undertaken continuous alert organism surveillance.<sup>198</sup> Eleven infection control teams had complemented this approach with the second method – continuous alert condition surveillance.<sup>199</sup>

**7.32** All hospital services collect information on incidences of hospital-acquired bloodstream infection for the Ministry's Balanced Scorecard reporting (see paragraph 2.54 on page 51). All but two respondents undertook some form of targeted surveillance (method 3) focused on specific sites of infections (e.g. wounds) and/or wards or units of the hospital.<sup>200</sup> Twelve had used the collaborative, laboratory-based ward liaison surveillance method.

**7.33** Of the six hospital services with tertiary hospitals, only three reported that they were undertaking some form of surgical site surveillance.<sup>201</sup> Only one had a comprehensive programme for the surveillance and monitoring of hospital-acquired infection that encompassed all of the following:

- overall rates of infection and rates from twice-yearly prevalence studies<sup>202</sup>;
- infectious organisms;

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198 F3.3: Q14, A – a.

199 F3.3: Q14, A – b.

200 F3.3: Q14, A – d, e.

201 F3.3: Q14, A – e.

202 A prevalence study examines the extent to which a phenomenon (in this case an infection) is present at a particular time in a particular area.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

- common infection types such as those in the bloodstream and surgical wounds; and
- cases associated with particular surgical procedures.

### *Conclusions*

- 7.34 Surveillance is an essential component in the prevention and control of infection in hospitals. All hospital services undertake some form of surveillance and, for most, this involves a programme for monitoring laboratory samples for significant organisms.
- 7.35 It is difficult to use surveillance data to draw meaningful comparisons within and between hospital services – or to collate national and regional infection data for comparable facilities undertaking similar medical procedures – because hospital services do not use consistent data definitions.
- 7.36 Hospital services with tertiary hospitals need to manage the additional infection risks associated with complex surgery and the relatively high severity of illness of many of their patients. However, only one of these six hospital services had a comprehensive programme of surveillance, so some important dimensions are not being covered.

#### **Recommendation 35**

In consultation with DHBs, the Ministry should draw up guidance on how and to what extent surveillance data should be collected.

### **Infection Control Teams' Access to Surveillance Data**

- 7.37 Infection control teams need ready access to surveillance data in order to monitor infection rates and trends. Such data might include:
- details of patients with infections and patients most at risk of infection; and
  - information about organisms, and laboratory results containing information about disease-resistance patterns.
- 7.38 Systems should be designed to alert staff to issues such as the presence of multi-drug-resistant organisms and of patients re-admitted with an infection.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

- 7.39 Efficient systems for collecting and recording data are particularly important in larger hospitals where patient throughput is high, hospital systems are more complex, and where it would otherwise be very difficult to maintain oversight of hospital-acquired infection. Where relevant hospital information systems – such as electronic patient records, laboratory, and pharmacy systems – are linked and readily accessible, they can provide infection control teams with important information on trends in hospital-acquired infection throughout the hospital.
- 7.40 The infection control team in one hospital that we visited had good access to surveillance data and was able to analyse bloodstream infections to identify and target vulnerable patient groups, and to improve the way in which medical procedures were performed. As indicated in paragraph 7.26 on page 159, the analysis provided a range of useful results, including:
- those services within the hospital responsible for the highest incidence of bloodstream infection;
  - those medical and surgical procedures representing the main sources of infection (such as bone marrow transplants and intravenous procedures); and
  - the organisms responsible for infection.
- 7.41 A more detailed analysis of infections that occurred after intravenous procedures showed which wards, methods of intravenous procedure, and organisms were most commonly associated with these infections.

### *Survey Responses on Sources of Surveillance Data*

- 7.42 Most infection control practitioners and doctors had full or partial access to electronic patient databases, the reports of microbiological analysis, and the hospital intranet.<sup>203</sup>
- 7.43 The infection control teams drew surveillance data from the following sources:<sup>204</sup>
- laboratory reports – the most commonly used source – 16 infection control teams examined these daily, three examined the results weekly, and one examined them monthly;

<sup>203</sup> F3.1: Q37, a, b, d.

<sup>204</sup> F3.3: Q16.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

- electronic patient records system – 17 teams examined these daily (12) or weekly (5);
- patients' paper records – 16 examined these daily (6) or weekly (10).

**7.44** Only six infection control teams examined pharmacy prescribing reporting systems when carrying out surveillance activities.<sup>205</sup> The infection control team had full or partial access to the pharmacy prescribing system in only four hospital services.<sup>206</sup> Lack of access for infection control teams may impede their ability to work with the pharmacy to identify relationships between patterns of antibiotic prescribing and infections.

**7.45** Data on infection rates was most commonly collected by organism, by site of infection (e.g. wounds), and by ward or unit. Only eight teams collected data by risk factor (e.g. the patient's condition and/or whether they were subject to an invasive procedure) and 11 teams collected data by surgeon.<sup>207</sup> Collecting or collating data in this way would enhance analysis and improve targeting to address possible causes of infection.

### Conclusions

**7.46** Overall, most infection control teams have satisfactory access to information systems for surveillance purposes. Most teams undertake regular and timely examination of surveillance data – mainly laboratory reports and electronic patient records.

**7.47** The data is collected so that it can be analysed against a range of factors, though not always by risk factor or by surgeon. In those hospital services collecting this additional data, a more extensive analysis is possible to help target causes of infection.

### Reporting Surveillance Results

**7.48** Where a patient's specimen indicates the presence of an infection, the responsible clinician receives a written report of the results.

**7.49** Collating these results – for example, by case mix, ward, or site of infection – and making them available to clinical staff helps identify patterns of infection. Analysing and providing the results to clinical staff enables them

<sup>205</sup> F3.3: Q16, d.

<sup>206</sup> F3.1: Q37, c.

<sup>207</sup> F3.3: Q17.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

to address identified concerns, take remedial action, and change practices that might be allowing infection to start or spread (see example provided in Figure 17 below).

### *Figure 17* *Example of Analysis of Infection Data that Can Produce Valuable Results for Clinicians*

Surgical site infections are a common hospital-acquired infection, resulting in sickness or, very occasionally, death. Patients whose surgical wounds become infected may need to spend additional days in hospital for treatment and rehabilitation. Monitoring and analysis of infection rates, with feedback to clinicians to help them review their practice, can help prevent such infections.

The details below illustrate one hospital's plan for analysing rates of surgical site infection over a specific period.

**Surveillance Period:** 133 days.

**Information to be collected:**

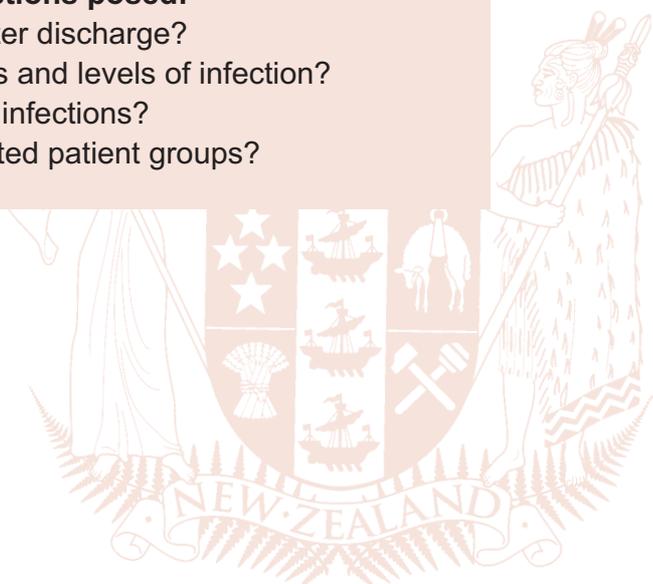
- Admission/operation date.
- Discharge date.
- Surgeon.
- Length of surgery.
- Type of surgery.

**Calculation:** Surgical risk scores for patients.

**Monitoring:** Patient health after discharge from the hospital.

**Summary of results – examples of the questions posed:**

- Was the infection identified in hospital or after discharge?
- What is the relationship between risk scores and levels of infection?
- What organisms have been responsible for infections?
- What have been the outcomes for the affected patient groups?



## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

### *Survey Responses on Reporting of Surveillance Results*

- 7.50 Twenty infection control teams reported infection rates, and 12 reported trends.<sup>208</sup> Both measures are necessary to provide a complete current and historical picture.
- 7.51 Not all hospital services reported the results of surveillance activities to clinical staff. Only two-thirds of hospital services that analysed surveillance results by ward/unit and by site of infection during the year to June 2001 reported the results to medical or nursing staff.<sup>209</sup>
- 7.52 Most hospital services were periodically reporting surveillance results to infection control committees and to key clinical managers:<sup>210</sup>
- twenty infection control teams reported the results to the infection control committee at least annually, with 16 doing so monthly or more often; and
  - eighteen Medical Directors and Directors of Nursing received surveillance results at least annually, and more than half at least monthly.
- 7.53 In four cases, quality/risk managers received no surveillance reports.<sup>211</sup>

### *Conclusions*

- 7.54 Reporting of surveillance data to clinical staff needs to be selective in order to avoid burdening them with non-essential information. However, some infection control teams were not reporting this data to them at all – thereby losing the opportunity to support clinical staff in exploring possible causes of infection, such as clinical practices, that might be affecting the level of infection.
- 7.55 Not all infection control teams were providing periodic surveillance reports to quality/risk managers, highlighting (as noted elsewhere in this report) the poor links in some hospital services between infection control activities and the roles of quality assurance and risk management.

208 F3.3: Q18, a & b respectively.

209 F3.3: Q14, B & C – d, e.

210 F3.3: Q21.

211 F3.3: Q21, e.

### Recommendation 36

Infection control teams should review how reporting of surveillance data to quality/risk managers and clinical staff can be improved.

## Surveillance of Patients After Discharge from Hospital

- 7.56 Surgical patients are three times more likely than other patients to acquire an infection in hospital. Many hospital-acquired infections become evident only after a patient has been discharged.

### *Survey Responses on Patients Re-admitted with a Hospital-acquired Infection*

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- 7.57 The most serious infections may lead to patients being re-admitted, so the collation of information on patients re-admitted with a hospital-acquired infection is an important part of infection control. However, only seven hospital services were able to identify patients re-admitted with a hospital-acquired infection from an electronic patient administration system<sup>212</sup> and, even in those cases, the information was not always considered reliable.<sup>213</sup>

### *Survey Responses on Post-discharge Surveillance*

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- 7.58 Most hospital-acquired infections that become apparent after discharge are not serious enough to require re-admission, but they can still cause the patient discomfort and lead to additional health care costs. Such patients are often treated in the community without the knowledge of the hospital. As a consequence, reported infection rates are likely to be understated.

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212 F3.1: Q38.

213 Some respondents' additional notes to F3.1: Q38.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

- 7.59 An investigation into the health of discharged patients by the infection control team at one large hospital we visited, illustrated the extent to which hospital-acquired infection is likely to be understated, and demonstrated the benefits to be gained from post-discharge surveillance.
- 7.60 For the period March to April 2001, the infection control team had collected information about 237 surgical operations. As part of its investigation, the team analysed records of re-admissions and responses to a questionnaire sent to patients 30 days after discharge. The team found that surgical wound infections had occurred in 18 patients (7.6%), with all but two having occurred after discharge.
- 7.61 Comprehensive monitoring of patient health after discharge would be time-consuming and costly, but we expected all hospital services to be carrying out some form of selective post-discharge surveillance. We asked whether the infection control team carried out post-discharge surveillance and how it identified cases of hospital-acquired infection.
- 7.62 Sixteen infection control teams carried out some form of post-discharge surveillance. Fourteen of these teams asked patients to fill in a questionnaire. Five used telephone surveys of patients and two surveyed the patients' general practitioners (GPs).<sup>214</sup>
- 7.63 Patients who acquire infections as a result of their stay in hospital are usually treated by their GPs. The Ministry plans to enhance sharing of data between GPs and other community health facilities, pharmacies, and hospitals.<sup>215</sup> Enhanced data-sharing has the potential to provide hospitals with a more accurate picture of their rates of hospital-acquired infection.

### Conclusions

- 7.64 It is important to know when patients are re-admitted with a hospital-acquired infection because these are generally the most serious cases, but most hospital services have no reliable information on such re-admissions.
- 7.65 Comprehensive monitoring of every patient after discharge (including patients who attend as outpatients or day cases) is unlikely to be cost-effective at present. However, most hospital services undertake periodic post-discharge surveillance which provides an indication of the extent of hospital-acquired infection that becomes apparent after discharge.

<sup>214</sup> F3.3: Q22.

<sup>215</sup> Ministry of Health, The WAVE Advisory Board to the Director-General of Health, 2001, From Strategy to Reality. The WAVE Project Kia hopu te ngaru – Health Information Management and Technology Plan – Working to Add Value through E-information, Ministry of Health, Wellington, – [www.moh.govt.nz](http://www.moh.govt.nz).

### Recommendation 37

Hospital services should put in place systems to help them identify patients re-admitted with a hospital-acquired infection.

## Assessing the Need for Isolation Facilities

7.66 Patients with infectious conditions can pass those conditions to other patients, staff, and other people within the hospital. If a patient is known (or suspected) to be colonised with a particular infection, they may need to be physically isolated from other people. The design of isolation rooms (for example, whether rooms have a specialised ventilation system or their own wash basin and toilet) should have regard to the way in which the particular infection can be transmitted (for example, by body contact or by air) and the condition of the patient.

... Too few toilets and showers in wards therefore isolated patients required to shower last to enable showers to easily be decontaminated afterwards ...

7.67 Protective isolation facilities may also be necessary for patients who have no immunity or whose immunity is impaired, such as those undergoing certain types of medical procedures (e.g. bone marrow transplants).

### *Survey Responses on Arrangements for Isolating Patients*

7.68 Hospitals need to have enough appropriately located and designed isolation rooms to meet their requirements. We asked infection control teams:

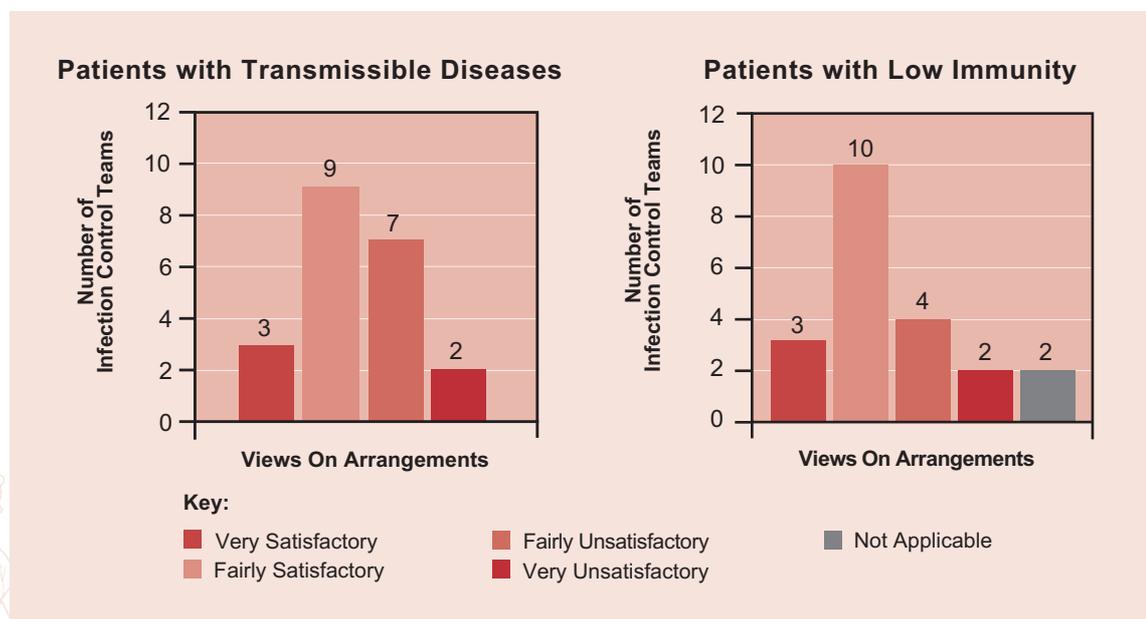
- whether hospital services had undertaken a formal risk assessment to ensure that adequate arrangements were in place to isolate patients; and
- whether the team assessed isolation arrangements as satisfactory.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

- 7.69 Fewer than half of the 21 hospital services (including two of the six with tertiary hospitals) had undertaken a formal written risk assessment to ensure that adequate arrangements were in place for isolating patients.<sup>216</sup> Most risk assessments considered what type of rooms were needed and how many.<sup>217</sup>
- 7.70 Only 12 infection control teams viewed the hospital service's arrangements for isolating patients with transmissible diseases<sup>218</sup> as very or fairly satisfactory (see Figure 18). Only 13 infection control teams viewed the hospital service's arrangements for protective isolation of patients with low immunity<sup>219</sup> as very or fairly satisfactory.

**Figure 18**  
*Infection Control Teams' Views on the Arrangements for Isolating:*

- *Patients with Transmissible Diseases*
- *Patients with Low Immunity*



216 F3.3: Q46, a & b.

217 F3.3: Q47, a & b.

218 F3.3: Q51a.

219 F3.3: Q51b.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

- 7.71 Where respondents assessed the facilities as fairly or very unsatisfactory they gave a range of reasons:
- a lack of adequate en-suite facilities;
  - not enough suitably ventilated rooms;
  - rooms that were too small;
  - rooms that were difficult to clean; and
  - facilities that did not comply with the guidelines for the care of patients with TB.
- 7.72 Isolation facilities are a key resource in tertiary hospitals which carry out many complex surgical procedures, treat especially sick and vulnerable patients, and may have high rates of bed occupancy. Some infection control staff in the tertiary hospitals we visited were worried by the demand on bed availability, and shortages of rooms with specially designed ventilation systems for patients with transmissible diseases.
- 7.73 One team in a hospital service with a tertiary hospital viewed the isolation arrangements – for both transmissible diseases and protective isolation of patients with low immunity – as very unsatisfactory.<sup>220</sup> Concern was expressed at the lack of specialist arrangements for isolating patients undergoing bone marrow transplants.
- 7.74 Isolation rooms should be located close to the wards where the relevant patients are undergoing treatment and near the specialists and other staff providing that treatment. One hospital we visited had a specially designed room for patients with multi-drug-resistant TB, but the room was poorly placed for the staff providing the treatment. As a result, TB patients were being admitted to a respiratory ward located in a different part of the hospital. This practice had the potential to place other patients at risk and meant that the special room was not being used for its intended purpose.

... Demand for isolation rooms frequently exceeds availability ...

220 F3.3: Q51a; Q52a.

## SCREENING AND SURVEILLANCE TO IDENTIFY HOSPITAL-ACQUIRED INFECTION

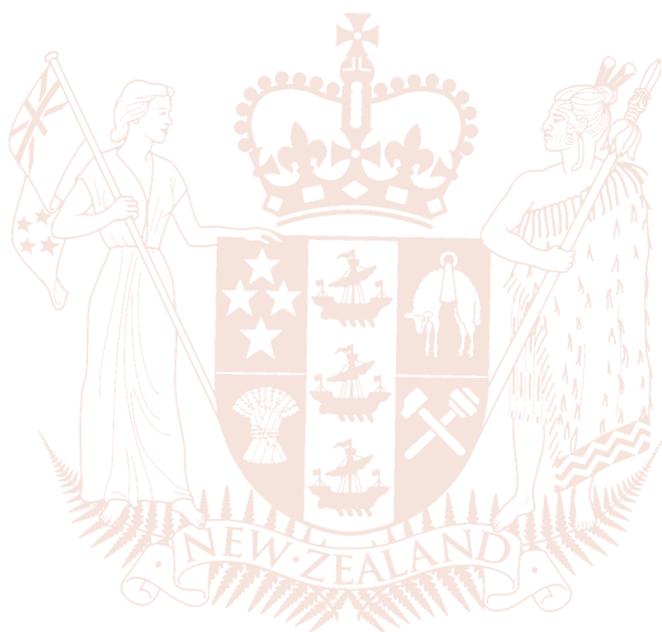
- 7.75 Treating patients with low immunity demands special precautions. In the same hospital service's haematology unit (which treats patients with blood cancers like leukaemia) a ventilation system minimised the risks of infection to this particularly vulnerable group of patients. The air in the unit was tested monthly for fungal spores, helping to maintain a safe environment.

### *Conclusions*

- 7.76 We were concerned that most hospital services were not undertaking formal risk assessments of the adequacy of arrangements for isolating patients.
- 7.77 In some hospital services, the insufficient quality and/or quantity of isolation facilities places some patients at risk from having to undergo and/or recover from complex technical and expensive treatment in a poor quality environment that is not suited to its purpose.

#### **Recommendation 38**

Hospital services should review the adequacy of their arrangements for isolating patients.



## Part Eight

# Managing Outbreaks of Hospital-acquired Infection





## Introduction

- 8.1 Every hospital needs to establish its “normal” (or baseline) incidence of hospital-acquired infection so that it can identify abnormal levels or outbreaks when they occur. An outbreak may be defined as an increase in the occurrence of a disease by reference to a recorded baseline rate – although, in practice, timely notification of a possible outbreak often relies on the past experience of clinical and laboratory staff, and on them being alert to the condition of individual patients.
- 8.2 An outbreak may also be identified by cases of infection that are clearly associated (in time and place). Although outbreaks represent only around 10% of cases of infection acquired in hospital, any major increase in cases is evidence that an infection has begun to spread and is beginning to pose a possible serious threat to other patients and staff.
- 8.3 Hospitals need to have plans to deal with outbreaks of hospital-acquired infection. The infection control committee should be closely involved in drawing up and endorsing these plans. The infection control team must have access to managers and medical and nursing staff who have the authority to take the actions necessary to contain the outbreak.
- 8.4 In this part we examine how outbreaks are managed. We asked:
- whether hospital services had documented arrangements or plans to deal with outbreaks of hospital-acquired infection;
  - whether the infection control committee was consulted and whether it endorsed the plans;
  - how often committees were convened specifically to deal with an outbreak during 2000-01;
  - whether outbreaks led to the production of a report; and
  - whether any such reports gave rise to changes in policies or procedures.



### Survey Responses on Plans for Managing Outbreaks

8.5 An outbreak first needs to be recognised. Information related to the event then needs to be gathered and an action plan put in place. All but one hospital service reported that they had documented infection outbreak response arrangements or plans that had been endorsed by the infection control committee.<sup>221</sup> Outbreak plans should:

- define what is meant by an outbreak;
- assign responsibility for notifying and investigating a suspected outbreak;
- specify what information should be gathered;
- set out how a team or committee will be formed to control the outbreak, the membership of the team or committee, and the team's mandate and tasks;
- specify required communications with external agencies; and
- set out requirements for reporting and follow-up.

8.6 In most hospital services, the infection control team or a specific infection control practitioner was responsible for managing a range of types of outbreak.<sup>222</sup> One hospital service's plan for the management of infection outbreaks specified in detail the roles and responsibilities of the outbreak committee, managers, and clinical and laboratory staff, and other hospital staff. The plan specified the control measures to be taken, outlined the procedures for convening a committee to manage the outbreak, and defined the committee's membership and roles.

8.7 Putting strict controls in place is a vital aspect of containing an outbreak. The controls should include rigorous screening of patients, ongoing education, and careful clinical practices. One hospital service that we visited had successfully halted an MRSA outbreak by following its documented control plan while maintaining close monitoring of the course of the outbreak. The steps that staff had taken to contain cross-infections included:

- screening all patients in the ward at the time in order to establish a baseline infection rate;
- screening all new admissions for a two-week period, followed by selective screening of patients most likely to be colonised or infected;

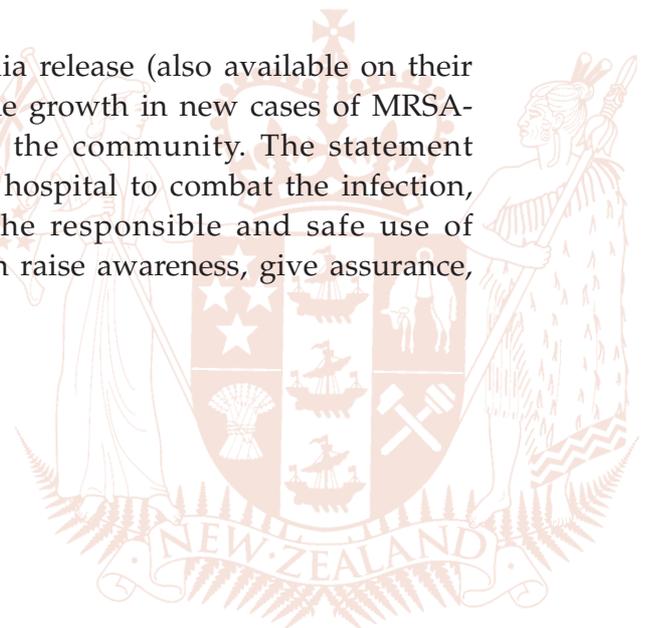
<sup>221</sup> F3.3: Q36 – in one hospital service the plan had been discussed by the committee but had not been formally endorsed.

<sup>222</sup> F3.3: Q38.

- screening at-risk staff;
- providing additional education for staff; and
- using disinfection agents to help prevent the spread of infection through patient contact.

### Effective Communication During Outbreaks

- 8.8 Communication is a vital part of outbreak management. Above all, staff should be kept informed and made aware of special precautions to be taken.
- 8.9 Keeping patients informed is also an important aspect of a hospital's communications strategy, and their co-operation can help contain a threatened or actual outbreak. Patients isolated for infectious conditions need to know about their infection, how it might affect them, and how to stop it spreading. Some hospitals had published helpful brochures for this purpose.
- 8.10 Keeping the public informed of the management of outbreaks and the prevention and control of hospital-acquired infection can serve a number of useful purposes:
- to assure the public about measures taken to manage risks to patient safety;
  - to secure the co-operation of the public in preventing the emergence and spread of infection; and
  - to maintain or restore public confidence after notification of an outbreak.
- 8.11 One hospital service had issued a media release (also available on their web site) to inform the public about the growth in new cases of MRSA-linked infections in hospitals and in the community. The statement outlined measures being taken by the hospital to combat the infection, and sought public co-operation in the responsible and safe use of antibiotics. Such published material can raise awareness, give assurance, and provide practical guidance.



### Survey Responses on Overseeing the Management of Outbreaks

- 8.12 Outbreaks can take weeks – or, in severe cases, months – to bring under control. MRSA outbreaks can occur in several wards at the same time and become established.
- 8.13 In these circumstances, having a committee to oversee the management of the outbreak can provide continuity and strengthen oversight. The committee may need to remain in place for some time or to re-convene to deal with subsequent events. Our survey responses suggested that oversight by the infection control committee or a subcommittee plays an important part in managing an outbreak – most respondents had convened at least one committee to help manage an outbreak at some time during 2000-01.<sup>223</sup>

### Reporting of Outbreaks

- 8.14 Providing reports on outbreaks can help to identify important lessons for future infection control practices – prompting review of practices and giving rise to recommendations and action plans to address identified concerns.
- 8.15 Investigations commonly show where and how infection risks can be better managed – pointing to improvements that can potentially enhance the safety of staff and patients. One hospital ward had proposed wide-ranging measures to prevent the recurrence of an infection outbreak – encompassing the cleaning regime, education on use and cleaning of nebulisers, restrictions on antibiotic prescribing, and the application of contact precautions within the ward.
- 8.16 Outbreaks and their management affect all parts of a hospital. Changes in policies or procedures arising from reports of outbreak investigations may include aspects of hospital practice relevant to many different wards, units, and functions throughout the organisation, including:
- hand hygiene;
  - bed management policy and/or practices;
  - patient screening;
  - intravenous procedures;
  - means of notifying staff of an outbreak; and
  - use of isolation facilities.

- 8.17 One hospital service sent us a report that followed the progress of an MRSA outbreak from March to December 2001. During this period, 49 patients with MRSA were isolated for extended periods of time.
- 8.18 Although policies and procedures were in place to manage the MRSA outbreak, a number of factors had contributed to the difficulties of managing the outbreak, such as:
- patients being admitted with the infection;
  - a shortage of beds and overcrowding due to a large number of patients with winter-related illnesses, resulting in patient transfers between wards that increased the risk of spreading the infection;
  - a shortage of regular nurses and (therefore) an unusually high number of casual staff and staff movements around hospital wards, creating additional risks of the infection spreading;
  - a shortage of designated equipment for isolation rooms;
  - inadequate facilities for isolating patients;
  - poor cleaning standards;
  - a shortage of toilets and showers; and
  - toilets and showers with surfaces that were difficult to decontaminate.
- 8.19 The report made wide-ranging recommendations in relation to:
- staff education;
  - auditing of hand hygiene;
  - numbers of nursing staff;
  - supervision of patient transfers;
  - establishment of additional isolation facilities;
  - faster implementation of actions to contain an identified outbreak; and
  - improved cleaning standards.



### Survey Responses on the Distribution of Reports on Outbreaks

- 8.20 Responsibility for responding to the lessons from infection outbreaks rests with a variety of managers throughout the hospital. Reports on the management of outbreaks should be distributed widely to ensure hospital-wide action to prevent and control infection and minimise future risks.
- 8.21 Not all relevant managers were receiving copies of outbreak reports<sup>224</sup>:
- the General Manager in 14 hospital services received outbreak reports;
  - quality or risk managers in 13 received the reports; and
  - key clinical leaders – the Medical Director and the Director of Nursing – received the reports in only 11 and 13 hospital services respectively.

### *Conclusions*

- 8.22 Nearly all hospital services had documented arrangements or plans to deal with outbreaks of infection, and used the infection control committee to oversee responses to outbreaks.
- 8.23 Reports that review how well outbreaks were handled can contain important lessons for the management of future outbreaks. Some hospital services were not making such reports widely available to those in the hospital charged with taking action on issues raised in the reports.

#### **Recommendation 39**

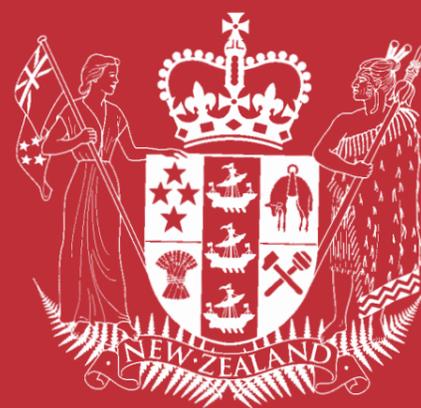
Hospital services should ensure that reports on the management of outbreaks are distributed widely to all hospital managers responsible for taking action to prevent and control hospital-acquired infection and minimise future risk.

224 F3.3: Q40.



**Don't** visit if you are not feeling well

♥ Just bring hugs into the hospital, not bugs



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**Controller and Auditor-General**  
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